IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION

THINKLOGIX, LLC,
Plaintiff,

v.

CRESTRON ELECTRONICS, INC.,
Defendant.

Case No. 4:23-cv-00844

Jury Trial Demanded

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff ThinkLogix, LLC, ("ThinkLogix") files this Complaint against Crestron Electronics, Inc., (hereinafter "Crestron") for infringement of United States Patent Nos. 7,091,898; 7,305,467; 7,924,700; 8,599,835; 9,231,994; and 9,906,573 (the "Patents-in-Suit"), and alleges as follows:

NATURE OF THE ACTION

1. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 1 *et seq.*

THE PARTIES

2. ThinkLogix LLC is a Texas limited liability company with its principal place of business at 17350 State Highway 249, Suite 220, Houston, Texas 77064-1132, USA.

3. On information and belief, defendant Crestron is a corporation organized under the laws of New Jersey, having a principal place of business at 15 Volvo Drive, Rockleigh, New Jersey 07647.

4. On information and belief, defendant Crestron may be served with process via its registered agent, Corporation Service Company d/b/a CSC-Lawyers Inc., located at 211 E. 7th., Suite 620, Austin, Texas 78701, USA.

5. On information and belief, Crestron has been authorized to do business in the State of Texas and the Eastern District of Texas since at least January 4, 2010, under Texas SoS File Number 0801212748.

JURISDICTION AND VENUE

6. On information and belief, Crestron distributes its video conferencing products and services to its customers, including but not limited to those customers in this Judicial District.

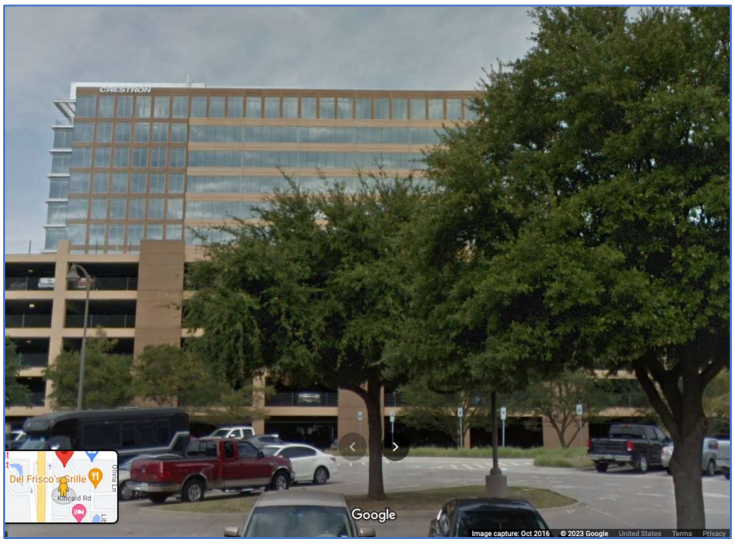
7. On information and belief, Crestron also provides mobile and online video conferencing services associated with its video conferencing products and services.

8. The Patents-in-Suit cover Crestron's products, services, and methods related to conference room control, network monitoring, streaming communications, and video conferencing systems, which are designed, developed, manufactured,

distributed, sold, offered for sale, and used by Crestron and/or their customers, consumers, and clients, including but not limited to those customers, consumers, and client residing in the State of Texas and this Judicial District.

9. On information and belief, Crestron, on its own and/or via its divisions, subsidiaries, partners, and affiliates maintains a corporate and commercial presence in the United States, including in the State of Texas and this Judicial District, via at least 1) Crestron's physical locations, established throughout Texas, including this Judicial District; 2) Crestron's online presence that provides to consumers access to Crestron's video conferencing products and services, including those identified as infringing herein; and 3) consumers and clients of Crestron who utilize Crestron services, at physical and online sites.

10. Crestron, on its own and/or via alter egos, agents, divisions, subsidiaries, partners, and affiliates maintains a regular and established place of business in this District located at 7250 Dallas Parkway, Suite 600, Plano, Texas 75024, USA. Thus, Crestron does business, including committing infringing acts, in the United States, the State of Texas, and in this Judicial District.



11. On information and belief, Crestron has made, used, offered to sell and/or sold products and services, including the following specifically accused products and services: (1) Crestron Conference Room Solutions;[1] (2) Crestron All-in-One Solutions;[2] (3) Crestron Intelligent Video Systems; [3] (4) MyCrestron Services;[4] (5) Crestron Mobile Apps;[5] (6) Creston IP Cameras;[6] (7)current or legacy products or services, which use, or have used, one or more of the foregoing products and services as a component product or component service; (4) combinations of products and/or services comprising, in whole or in part, two or more of the foregoing products and services; and (5) all other current or legacy products and services imported, made, used, sold, or offered for sale by Crestron that operate, or have operated in a substantially similar manner as the above-listed products and services. (As used herein, one or more of the forgoing products and services are individually and collectively referred to as the accused "Crestron Products and Services"). On

[1] *See e.g.*, https://www.crestron.com/Products/Market-Solutions/Enterprise-Solutions.
[2] *See e.g.*, https://www.crestron.com/Products/Video/All-In-One-Solutions
[3] *See e.g.*, https://www.crestron.com/Products/Workspace-Solutions/Intelligent-Video; https://www.crestron.com/Products/Workspace-Solutions/Intelligent-Video/1-Beyond-Intelligent-Video/IV-CAMPTZ-20-N-W-1B.
[4] *See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Overview/Overview-myCrestron-Services.htm.*
[5] *See e.g.*, https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-GO; https://apps.apple.com/us/app/crestron-go/id1524705695; https://play.google.com/store/apps/details?id=air.com.crestron.andros&hl=en_US&gl=US&pli=1; https://docs.crestron.com/en-us/8525/Content/CP4R/Configuration-Software.htm; https://apps.apple.com/us/app/crestron-home/id1466827669
[6] *See e.g.,* https://www.crestron.com/Products/Workspace-Solutions/Intelligent-Video/1-Beyond-Intelligent-Video.

information and belief, the Crestron Products and Services infringe at least one claim of each of the patents-in-suit.

12. On information and belief, Crestron, as well as the hardware and software components comprising the Crestron Products and Services and/or that enable the Crestron Products and Services to operate, including but not limited to servers, server hardware, server software, website software, webservers, client-side software, mobile software, mobile app software, network monitoring hardware and software, and browser executable software (individually and collectively referred to herein as the accused "Crestron System"), infringe (literally and/or under the doctrine of equivalents) at least one claim of each of the Patents-in-Suit.

13. This Court has personal jurisdiction over Crestron, at least, because it committed and continues to commit acts of infringement in this judicial district in violation of 35 U.S.C. § 271. In particular and without limitation, on information and belief, Crestron has made, used, offered to sell access to, and/or sold access to the accused Crestron Products and Services in the Eastern District of Texas; has made, used, offered to sell access to, and/or sold access to the Crestron System in the Eastern District of Texas; and has induced the use by it is customers of Crestron Products and Services and the Crestron System in the Eastern District of Texas.

14. On information and belief, Crestron is subject to the Court's jurisdiction because it regularly conducts and solicits business, or otherwise engages in other persistent courses of conduct in this judicial district, and/or derives substantial revenue from the use, sale, and distribution of goods and services,

including but not limited to the accused Crestron Products and Services provide to individuals and businesses in the Eastern District of Texas.

15. On information and belief, Crestron directly infringes the Patents-in-Suit in Texas, including specifically the Eastern District of Texas, at least, by making, using, offering to sell access to, and/or selling access to the accused Crestron Products and Services in the Eastern District of Texas, and its making, use, offering to sell access to, and/or selling access to the Crestron System in the Eastern District of Texas.

16. On information and belief, one or more of the accused Crestron Products and Services and/or the Crestron System are made, used, sold and offered for sale by Crestron, its subsidiaries and/or agents, in the Eastern District of Texas.

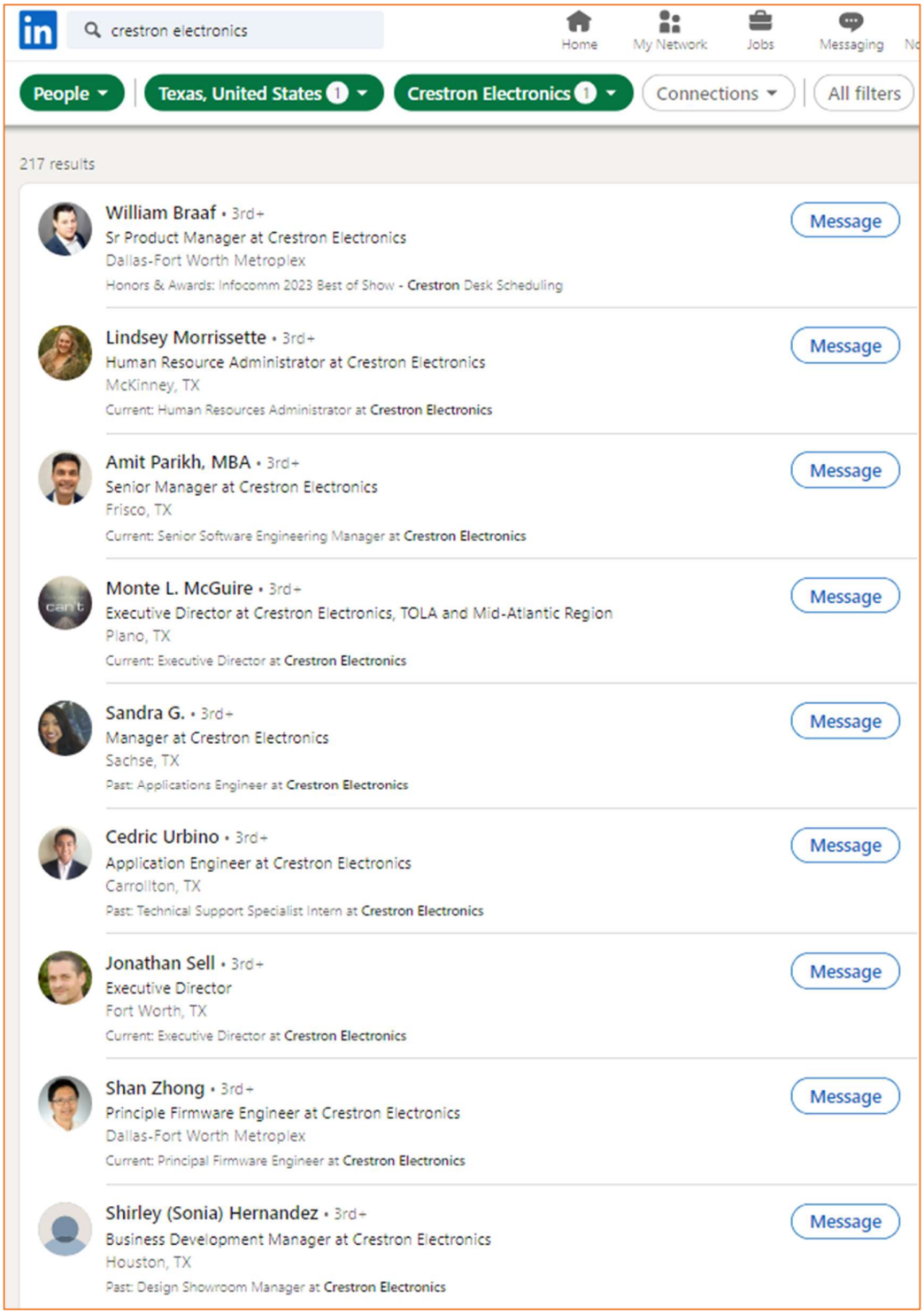
17. On information and belief, Crestron's customers located in the Eastern District of Texas have obtained access to and used the accused Crestron Products and Services and/or the Crestron System while located in the Eastern District of Texas.

18. The Court has personal jurisdiction over Crestron, at least, because it has continuous business contacts in the State of Texas and in the Eastern District of Texas and Crestron has engaged in business activities including transacting business in the Eastern District of Texas and purposefully directing its business activities, including the sale or offer for sale of the Crestron Products and Services to the Eastern District of Texas to induce, aid, abet, and/or contribute to the infringement of third parties in the Eastern District of Texas, including without limitation the direct infringement of Crestron's customers located in the Eastern District of Texas

through the use of Crestron Products and Services and the Crestron System, while they are located within the Eastern District of Texas.

19. This Court has personal jurisdiction over Crestron because, *inter alia*, Crestron, on information and belief: (1) has committed acts of patent infringement in this Eastern District of Texas; (2) maintains a regular and established place of business in the Eastern District of Texas; (3) has substantial, continuous, and systematic contacts with this State and the Eastern District of Texas; (4) owns, manages, and operates facilities in this State and the Eastern District of Texas; (5) enjoys substantial income from its operations and sales in this State and the Eastern District of Texas; (6) employs Texas residents in this State and the Eastern District of Texas, and (7) solicits business using the Crestron Products and Services and Crestron System in this State and the Eastern District of Texas.

20. On information and belief, Crestron supports and markets the Crestron Products and Services and Crestron System in the State of Texas and this Judicial District, to customers and potential customers, who reside in the State of Texas and in this judicial district through various means, including through the efforts of its agents and/or employees who reside in the Eastern District of Texas.



21. Venue is proper pursuant to 28 U.S.C. §§ 1391(b), (c), (d) and/or 1400(b) and the Federal Circuit's decision in *In re Monolithic Power Sys.*, 50 F.4th 157 (Fed. Cir. 2022), at least because Crestron has multiple employees based out of this

district as listed on LinkedIn, has transacted business in this district, and has directly committed acts of patent infringement in this district.

22. On information and belief, Crestron has litigated/is litigating cases before this Court in which it admitted that venue was proper, did not contest personal jurisdiction and/or venue, and/or filed counterclaims.

United States Patent No. 7,091,898

23. On January 9, 2007, the USPTO duly and legally issued United States Patent No. 7,091,898 ("the '898 patent") entitled "System And Method For Using Keystroke Data To Configure A Remote Control Device" to inventors Paul D. Arling, and Patrick H. Hayes.

24. The '898 patent is presumed valid under 35 U.S.C. § 282.

25. ThinkLogix owns all rights, title, and interest in the '898 patent.

26. ThinkLogix has not granted Crestron an approval, an authorization, or a license to the rights under the '898 patent.

27. The '898 patent relates to, among other things, configuration of a remote control device.

28. The claimed invention(s) of the '898 patent sought to solve problems with, and improve upon the configuration of a remote control device by allowing users to associate specific actions with a key. This helps users streamline their remote control experience by assigning a sequence of actions to a single key press, making it easier to perform complex tasks without navigating multiple buttons and menus.

29. The inventions claimed in the ’898 patent solves the limitations of the prior art related to the complexity in providing more and more keys which are used to initiate the transmission of the control codes that control the increasing number of operations of the increasing number of home appliances.

30. The ’898 patent discloses various systems that provide a method of configuring a remote control device. The inventions claimed in the ’898 patent overcome the limitations in the prior art to streamline the remote control experience by assigning a sequence of actions to a single key press, including but not limited to: (1) the ability of the remote control device for a flexible and adaptable configuration; (2) the capability of searching the stored sequence to select one or more sequence subsets; (3) the feature of storing a sequence of activations of keys of the remote control device; (4) the ability to presenting the selected sequence subsets to a user; (5) the ability to allow a user to assign one of the selected sequence subsets to an activity key; and (6) the ability of the remote control device to performs actions in accordance with assigned selected sequence subset, in response to a subsequent activation of the activity key.

United States Patent No. 7,305,467

31. On December 4, 2007, the USPTO duly and legally issued United States Patent No. 7,305,467 (“the ’467 patent”) entitled “Autonomous tracking wireless imaging sensor network including an articulating sensor and automatically organizing network nodes” to inventors William J. Kaiser, Lars Fredric Newberg, and Gregory J. Pottie.

32. The ’467 patent is presumed valid under 35 U.S.C. § 282.

33. ThinkLogix owns all rights, title, and interest in the '467 patent.

34. ThinkLogix has not granted Crestron an approval, an authorization, or a license to the rights under the '467 patent.

35. The '467 patent relates to, among other things, to the sensing and tracking of moving objects using wireless integrated sensor networks.

36. The claimed invention(s) of the '467 patent sought to solve problems with, and improve upon sensing and tracking of moving objects using wireless integrated sensor networks. For example, the '467 patent states:

> The wireless integrated sensor network described herein combines the power of efficiency of passive sensors with the accuracy and selectivity of high-performance optical systems by integrating tracking systems like laser tracking systems, for example, with wireless integrated sensor networks equipped with visual or infrared imaging devices. Use of the tracking system allows components of the network to provide precise location, tracking, and targeting of objects moving through a sensor field or past a single integrated sensing and targeting unit. Further embodiments support arrays of sensors together with local signal processing in order to trigger cameras and laser tracking systems, or to provide an alternative location means for improved robustness. The wireless integrated sensor network of an embodiment is remotely controllable and configurable, with communication links enabling remote operators to receive information from the network via queries for sensory and image data, and re-task the system.

See '476 Specification at col. 2, ll. 43-60.

37. The inventions claimed in the '467 patent solve the limitations of the prior art used for cooperative signal processing tasks. The '467 patent discloses various systems that provide a method of creating a wireless imaging sensor network. The inventions claimed in the '467 patent overcome the limitations in the prior art to enhance the user experience in managing and utilizing such networks, including but not limited to: (1) the ability of the nodes to self-assemble and self-organize, which allows for a flexible and adaptable network structure; (2) the

capacity to remotely control the functions of the nodes, which provides convenience and efficiency in managing the network; (3) the capability to detect and track targets in the environment using sensors on the nodes, which enhances the network's utility in various applications such as surveillance and video conferencing; (4) the feature of collecting and transferring data associated with the targets to a remote client system, which enables effective data analysis and decision-making; (5) the inclusion of an articulating sensor in the nodes, which improves the accuracy and effectiveness of target tracking; and (6) the ability to manipulate the collected data, including routing, fusing, processing, evaluating, and storing the data, which enhances the network's data handling capabilities.

United States Patent No. 7,924,700

38. On April 12, 2011, the USPTO duly and legally issued United States Patent No. 7,924,700 ("the '700 Patent") entitled "Private network link verification procedure in free space optical communication network" to inventor Aine Shivnan.

39. The '700 patent is presumed valid under 35 U.S.C. § 282.

40. ThinkLogix owns all rights, title, and interest in the '700 patent.

41. ThinkLogix has not granted Crestron an approval, an authorization, or a license to the rights under the '700 patent.

42. The '700 patent relates to, among other things, communication systems, and to a system and method for verifying a communication link for a communication network.

43. The claimed invention(s) of the ’700 patent sought to solve problems with, and improve upon verifying the integrity of a communication link in communication networks.

44. The inventions claimed in the ’700 patent overcome the limitations of verifying the stability of a communication network. The ’700 patent discloses various systems that provide a method of verifying the integrity of a network link in a communication network. The inventions claimed in the ’700 patent overcome the limitations in the prior art to enhance the reliability and security of communication networks, including but not limited to: (1) the ability to transmit a verification signal from a first node to a second node over a network link, which allows for real-time monitoring of the network's integrity; (2) the capacity to receive the verification signal at the second node and transmit a response signal back to the first node, which provides a robust mechanism for network integrity verification; (3) the feature of verifying the integrity of the private network link based on the response signal received at the first node, which ensures the reliability of the communication link; (4) the inclusion of a system for verifying the integrity of a private network link, which enhances the overall security of the communication network; and

(5) the ability to apply this method to communication networks that are susceptible to disruptions and require robust integrity verification mechanisms.

United States Patent No. 8,599,835

45. On December 3, 2013, the USPTO duly and legally issued United States Patent No. 8,599,835 (“the ’835 patent”) entitled “Streaming media” to inventors Martti Mela, and Pekka Pessi.

46. The ’835 patent is presumed valid under 35 U.S.C. § 282.

47. ThinkLogix owns all rights, title, and interest in the ’835 patent.

48. ThinkLogix has not granted Crestron an approval, an authorization, or a license to the rights under the ’835 patent.

49. The ’835 patent relates to, among other things, a novel method of multimedia streaming based on the SIP protocol.

50. The claimed invention(s) of the ’835 patent sought to solve problems with, and improve upon, existing streaming media solutions. For example, the ’835 patent states:

> According to a first aspect of the present invention there is provided a method for providing an SIP session between a first and a second entity, said method comprising the steps of establishing a SIP session between the first and second entity; transmitting at least one media stream between the first entity and the second entity and controlling at least one of transmission, storage and play back of the at least one media stream at said first and/or second entity.
>
> According to a second aspect of the present invention there is provided a method of providing an SIP session between a first and a second entity, and a RTSP session between said second entity and a third entity, said method comprising the steps of establishing a SIP session between the first and second entity; establishing an RTSP session between said second entity and said third mapping between SIP and RSTP information to allow data to pass from one of said first and third entities to the other of said first and third entities.
>
> According to a third aspect of the present invention, there is provided a method of providing a SIP session between a first entity and a second entity, said method comprising the steps of establishing a SIP session between the first and second entities; providing at least one media stream to one of said first and second entities from the other of said entities; and updating said at least one media stream during said session.
>
> According to a fourth aspect of the present invention, there is provided a communications system comprising a first and second entity, said first and second entity being operable to establish a SIP session between the first and second entity, one of said entities being arranged to transmit at least one media streams to the other entity, said system being such that at least one of

transmission, storage and play back of the media streams is controlled at least one of said entities.

According to a fifth aspect of the present invention, there is provided a communications system comprising a first and second entity, said first and second entity being operable to establish a SIP session between the first and second entity, said first entity being arrange to retrieve a description of a session, said first and second entities being arranged to establish a session therebetween, one of the entities being arranged to send at least one media stream to the other entity and said other entity being arranged to control the play back of the media streams.

According to a sixth aspect of the present invention, there is provided a communications system comprising a first and a second entity, said first and second entity being operable to establish a SIP session between the first and second entity, one of said entities being arranged to transmit at least one media stream to the other entity, wherein said at least one of said media streams can be sent at one of a plurality of different playback rates.

According to a seventh aspect of the present invention, there is provide a communications system comprising a first, second and third entity wherein the first and second entities are arranged to establish a SIP session therebetween, and the second and third entities are arrange to establish a RTSP session therebetween, said second entity being arranged to map between SIP and RSTP information to allow data to pass from one of said first and third entities to the other of said first and third entities.

According to an eighth aspect of the present invention, there is provided a communications system comprising a first and a second entity, said first and second entity being operable to establish a SIP session between the first and second entity, one of said entities being arranged to transmit at least one media stream to the other entity, wherein said at least one media stream us updatable during said session.

According to a ninth aspect of the present invention, there is provided a gateway for use in a communications system, wherein said gateway is arranged to establish a SIP session with one entity and a RTSP session with a further entity, said gateway being arranged to map between SIP and RSTP information to allow data to pass from one of said first and third entities to the other of said first and third entities.

See '835 Specification col. 2, l. 5 – col. 3, ll. 1- 10.

51. The inventions claimed in the '835 patent overcome the limitations of prior art to enhance the user experience in streaming media, including but not

limited to: (1) the ability to receive a request to establish a media session for streaming media from a media source to a media sink, which allows for the initiation of a media streaming session; (2) the capacity to send a response to the request that includes a session description and an indication of a maximum bit rate for the media session, which provides a mechanism for controlling the quality and bandwidth usage of the media stream; (3) the feature of receiving a media stream from the media source at a bit rate that does not exceed the maximum bit rate, which ensures efficient use of network resources and prevents network congestion; (4) the inclusion of a method for dynamically adjusting the maximum bit rate based on network conditions, which provides flexibility in managing network resources and can lead to improved quality of service; and (5) the ability to provide a smoother streaming experience to the user by managing the bit rate of the media stream, which can reduce issues such as buffering or poor video quality.

United States Patent No. 9,231,994

52. On January 5, 2016, the USPTO duly and legally issued United States Patent No. 9,231,994 ("the '994 patent") entitled "Streaming media" to inventors Martti Mela and Pekka Pessi.

53. The '994 patent is presumed valid under 35 U.S.C. § 282.

54. ThinkLogix owns all rights, title, and interest in the '994 patent.

55. ThinkLogix has not granted Crestron an approval, an authorization, or a license to the rights under the '994 patent.

56. The '994 patent relates to, among other things, multimedia streaming based on SIP protocol.

57. The specification of the ’994 patent is the same as the ’835 patent specification and addresses and solves the problems recited above and described in the ’835 patent specification.

United States Patent No. 9,906,573

58. On February 27, 2018, the USPTO duly and legally issued United States Patent No. 9,906,573 (“the ’573 patent”) entitled “Streaming media” to inventors Martti Mela and Pekka Pessi.

59. The ’573 patent is presumed valid under 35 U.S.C. § 282.

60. ThinkLogix owns all rights, title, and interest in the ’573 patent.

61. ThinkLogix has not granted Crestron an approval, an authorization, or a license to the rights under the ’573 patent.

62. The ’573 patent relates to, among other things, multimedia streaming based on SIP protocol.

63. The specification of the ’573 patent is the same as the ’835 patent specification and addresses and solves the problems recited above and described in the ’835 patent specification.

CLAIMS FOR RELIEF

Count I – Infringement of United States Patent No. 7,091,898

64. ThinkLogix repeats, realleges, and incorporates by reference, as if fully set forth here, the allegations of the preceding paragraphs above.

65. On information and belief, Crestron has violated 35 U.S. C. § 271(a) with respect to one or more claims of the ’898 patent.

66. On information and belief, Crestron (or those acting on its behalf) made, used, sold, imported and or offered to sell the Crestron Products and Services; and made, used, sold, sold access to, imported, offered to sell and/or offered to sell access to the Crestron System in the United States that infringed (literally and/or under the doctrine of equivalents) at least claim 25 of the '898 patent.

67. On information and belief, one or more components of the Crestron System provide a computer readable media (*e.g.,* the Creston Home App) encoded with instructions for configuring a remote control device (*e.g.,* Crestron touch screens, Apple iOS devices, Android devices, etc.).


Crestron Home App

Use the Crestron Home app to control audio, video, lighting, shading, climate, a security system, door locks, cameras, and more throughout your home.

The Crestron Home app provides the same look and feel on Crestron Home user-interface devices such as Crestron touch screens, Apple® iOS® devices, and Android™ devices.

See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Overview/Overview-Software.htm.

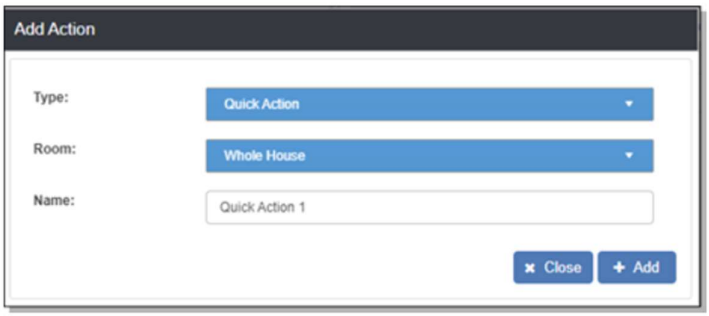
Quick Actions

Create Quick Actions that recall defined actions.

Create a Quick Action

Select **Quick Actions** from the **Select an Item** menu to display a configuration screen for the Quick Action.

1. Select a room from the **Actions** menu.
2. Tap ✚ **Add Event**.
3. In the **Add Action** menu, configure the Quick Action:



   - **Type:** Select **Quick Action**.
   - **Room:** Select a room.
   - **Name:** Enter a name for the Quick Action.
4. Select **Add**.

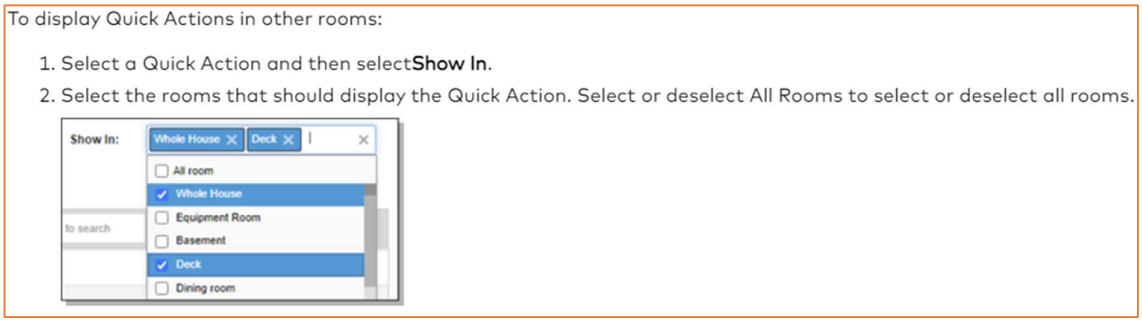
See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.

68. On information and belief, one or more components of the Crestron System employ the instructions to perform the step of storing a sequence of activations of keys (*e.g.*, Quick Action Sequence) of the remote control device.

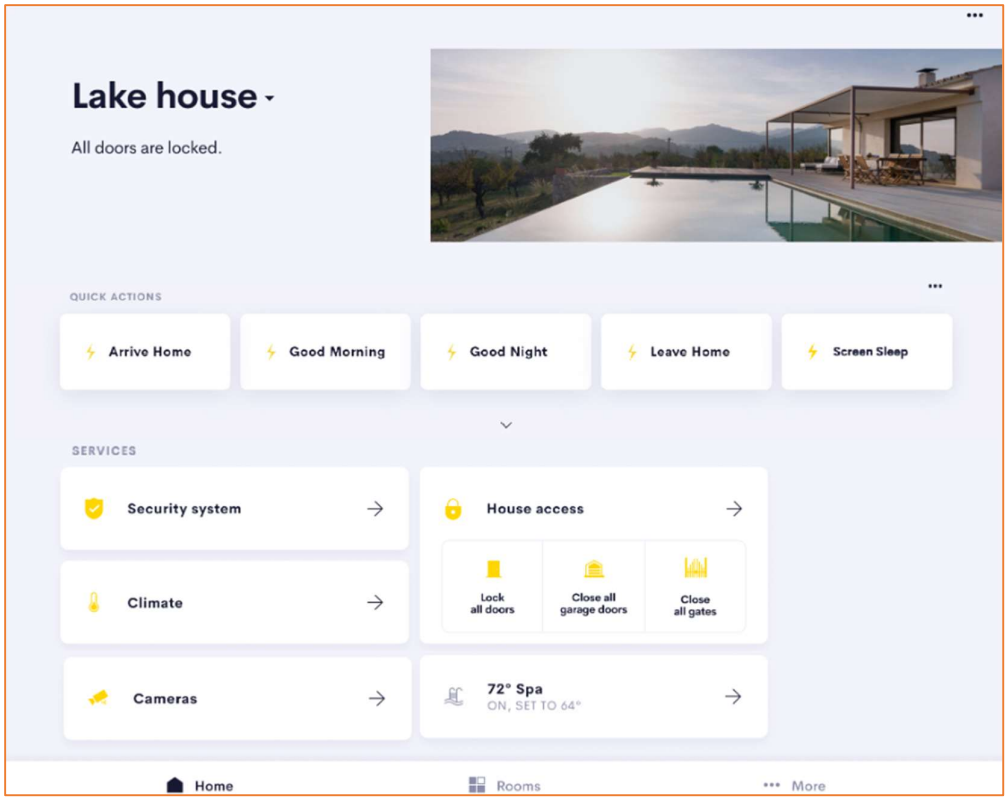
Show Quick Action in Different Rooms

The Quick Action can be configured so that it is available in different rooms around the house. When the Quick Action is displayed in a different room, it can be recalled by a user interface device that is located in the selected room(s).

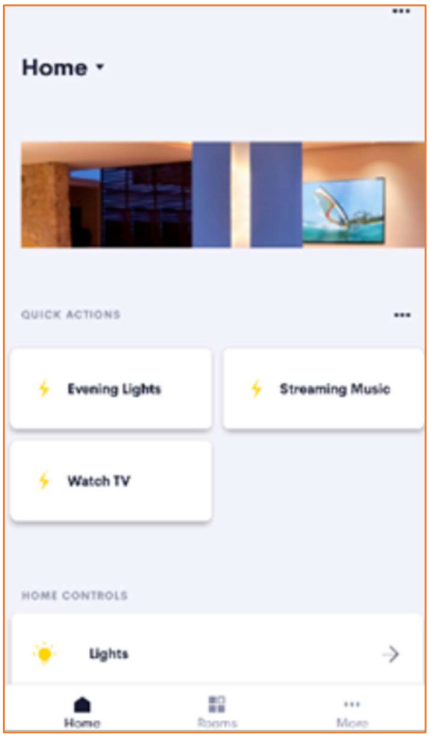
See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.



See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.



See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Operation/Operation-Quick-Actions.htm.

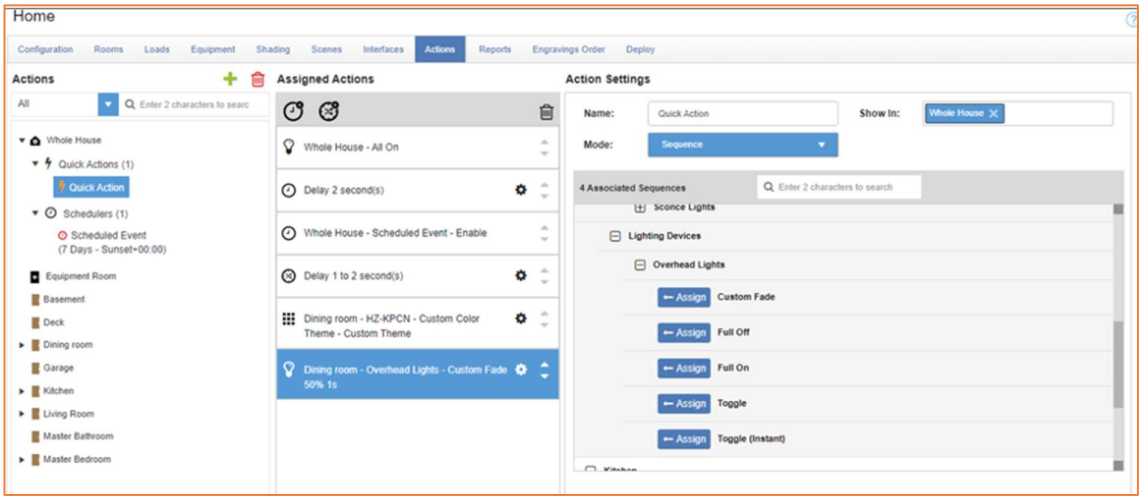


See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Operation/Operation-Quick-Actions.htm.

69. On information and belief, one or more components of the Crestron System employ the instructions to perform the step of searching the stored sequence to select one or more sequence subsets (*e.g.*, choose/assing actions).

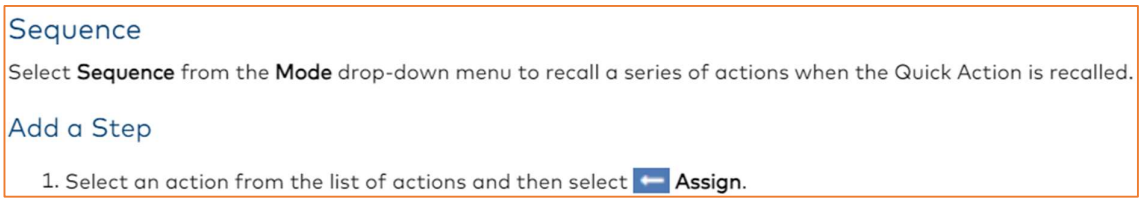
> **Sequence**
>
> Select **Sequence** from the **Mode** drop-down menu to recall a series of actions when the Quick Action is recalled.

See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.

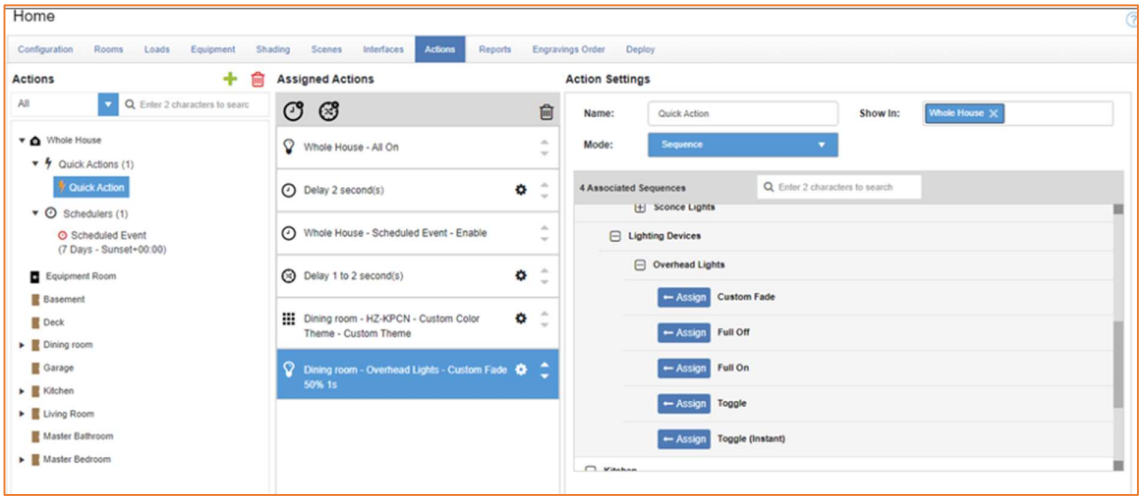


See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.

70. On information and belief, one or more components of the Crestron System employ the instructions to perform the step of presenting the selected sequence subsets (*e.g.*, series/list of actions) to a user.

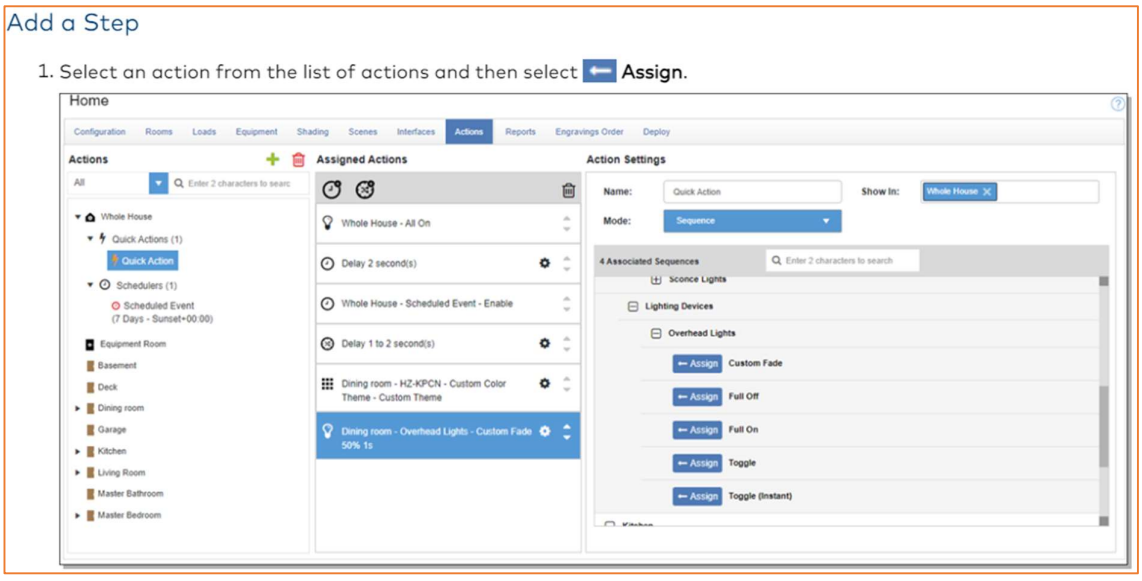


See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.

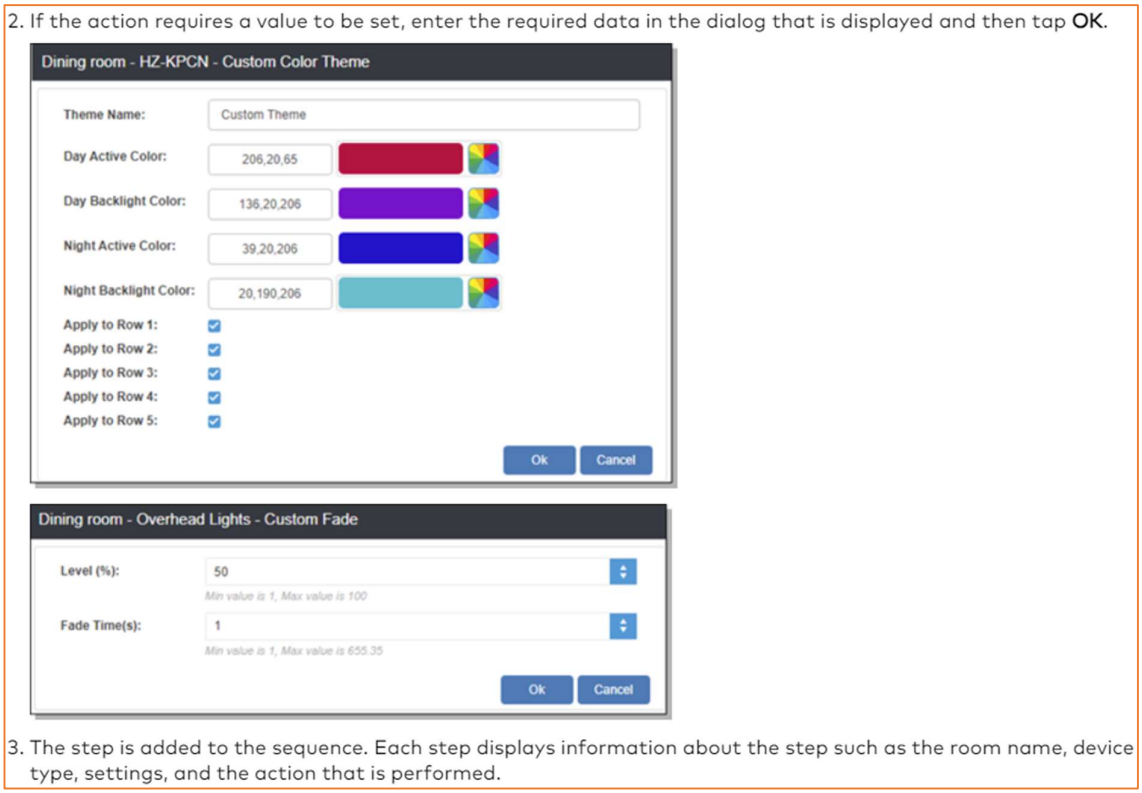


See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.

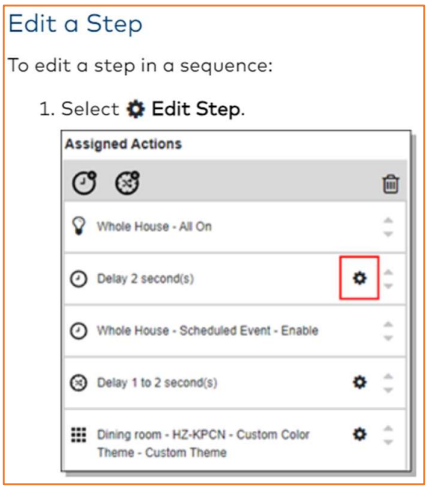
71. On information and belief, one or more components of the Crestron System employ the instructions to perform the step of allowing a user to assign one of the selected sequence subsets to an activity key (*e.g.*, add/edit/reorder a step to the selected sequence for Quick Action) whereby, in response to a subsequent activation of the activity key, the remote control performs actions in accordance with assigned, selected sequence subset.



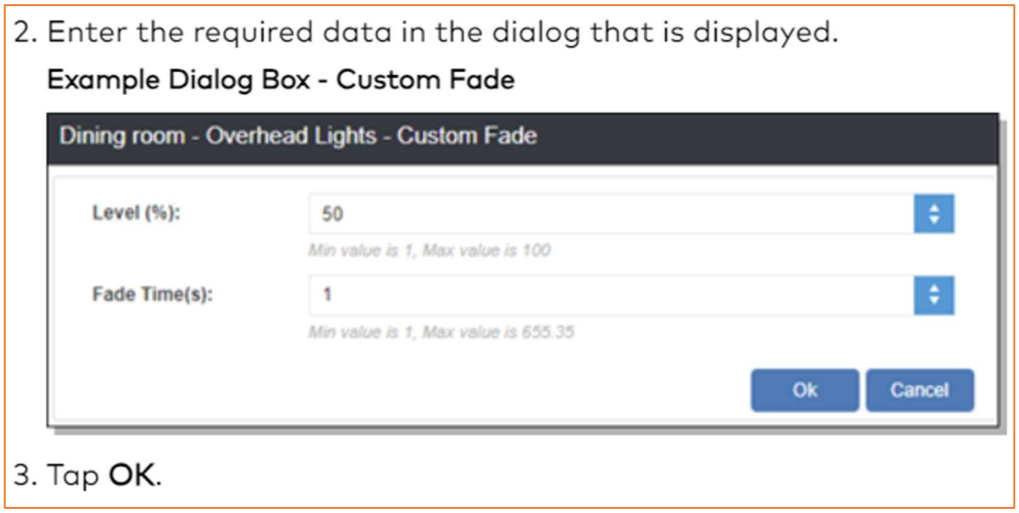
See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.



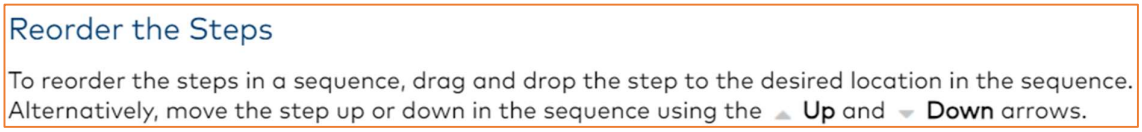
See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.



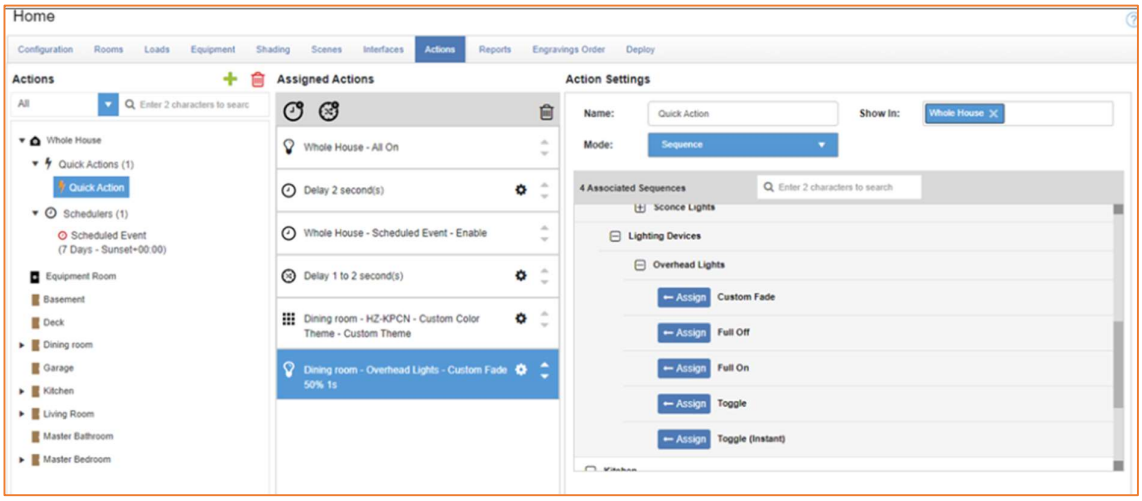
See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.



See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.



See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.



See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Crestron-Home-Configurator/Actions-Tab.

Quick Actions

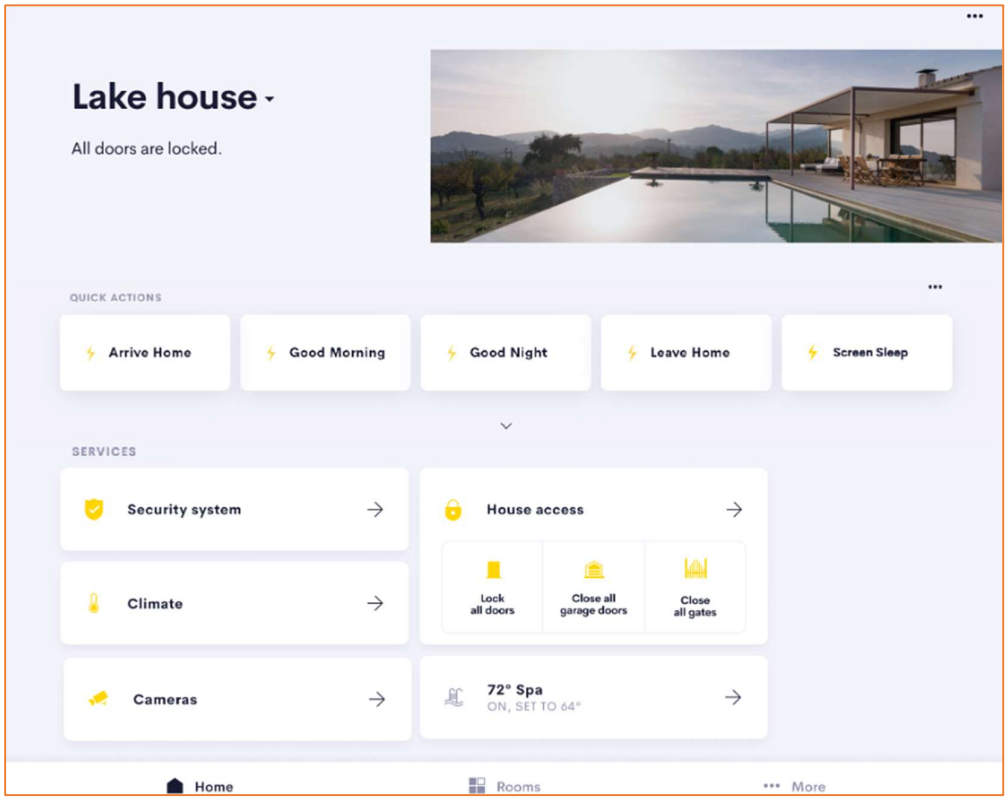
Use the **Quick Actions** to perform several functions at the same time. For example, a quick action can be created that controls the lights, shades, and television in a room.

To change the order of the Quick Actions or the Quick Action icon, use the ••• **Quick Actions** menu. For details, refer to Quick Actions.

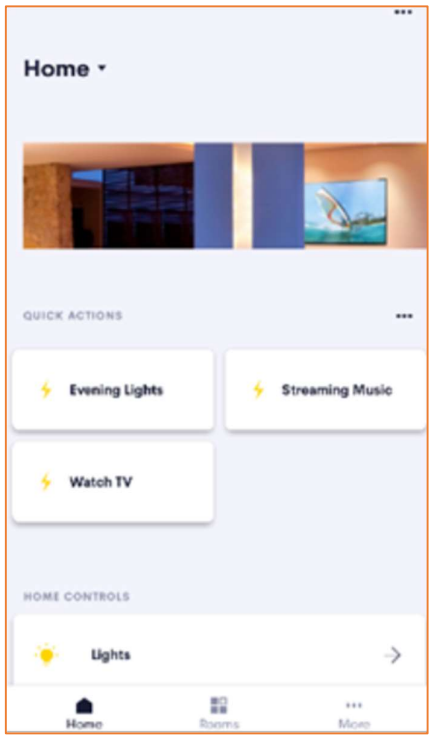
NOTES:

- The Crestron Home app displays up to 20 Quick Actions.

See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Operation/Operation-Quick-Actions.



See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Operation/Operation-Quick-Actions.



See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Operation/Operation-Quick-Actions.

72. On information and belief, Crestron directly infringed at least claim 25 of the '898 patent in violation of 35 U.S.C. § 271(a) by making, using, selling, importing, and/or offering to sell Crestron Products and Services; and making, using, selling, selling access to, importing, offering for sale, and/or offering to sell access to Crestron Products and Services.

73. ThinkLogix has been damaged by the direct infringement of Crestron and has suffered damages as a result of this infringement.

Count II – Infringement of United States Patent No. 7,305,467

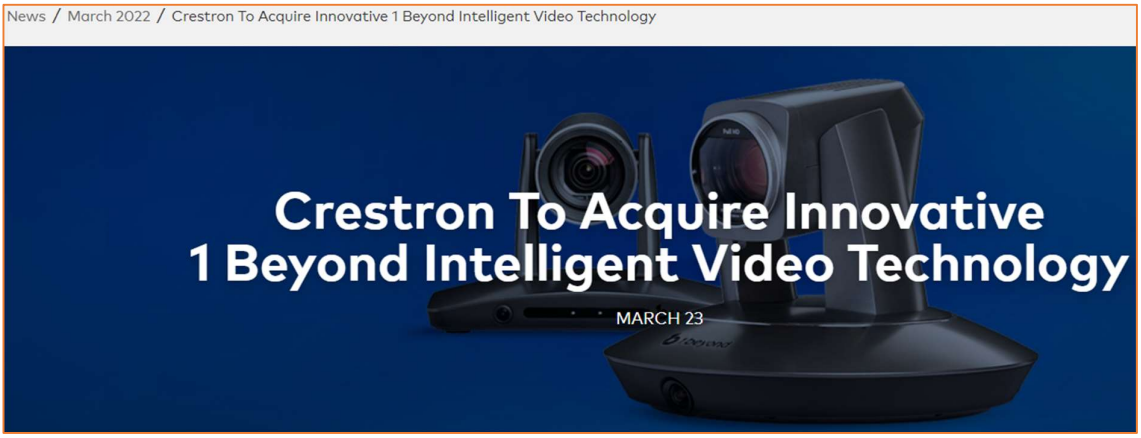
74. ThinkLogix repeats, realleges, and incorporates by reference, as if fully set forth here, the allegations of the preceding paragraphs above.

75. On information and belief, Crestron is in violation 35 U.S. C. § 271(a) with respect to one or more claims of the '467 patent.

76. On information and belief, Crestron (or those acting on its behalf) has made, makes, has used, uses, has sold, sells, has imported, imports, has offered to sell, and/or offers to sell the Crestron Products and Services; and has made, makes, has used, uses, has sold, sells, has imported, imports, has offered to sell, and/or offers to sell access to the Crestron System in the United States that infringes (literally and/or under the doctrine of equivalents) at least claim 11 of the '467 patent.

77. On information and belief, one or more components of the Crestron System comprises a sensor network (*e.g.*, multicamera systems network) comprising a plurality of nodes (*e.g.*, two or more devices comprising cameras), wherein the plurality of nodes are coupled to communicate with at least one remote system (*e.g.*, a Crestron control system) via at least one coupling with components of a wide area network, wherein the nodes automatically organize (*e.g.*, automatically switch cameras) to form the sensor network in response to information communicated among the nodes, wherein the automatic organizing comprises automatically coupling and configuring the nodes to form the sensor network and automatically controlling data (*e.g.*, video) transfer, processing, and storage within the sensor network, wherein functions of the nodes are remotely controllable and programmable via internetworking among the nodes.

See e.g., https://www.crestron.com/Products/Workspace-Solutions/Intelligent-Video/1-Beyond-Intelligent-Video/IV-CAMPTZ-20-N-W-1B.



See e.g., https://www.crestron.com/Products/Workspace-Solutions/Intelligent-Video/1-Beyond-Intelligent-Video/IV-CAMPTZ-20-N-W-1B.

The IV-CAMPTZ-20-N-W-1B[1] is a high quality PTZ IP camera that can output up to 1080p60 resolution video via the 3G-SDI or HDMI® ports. It is ideal for any meeting where one camera needs to capture several areas of the room. Combine with 1 Beyond Automate VX for a multi-camera speaker (presenter) tracking solution. The IV-CAMPTZ-20-N-W-1B camera supports a single Ethernet connection and provides power (PoE+), monitoring, control, and NDI®|HX video.

See e.g., https://www.crestron.com/Products/Workspace-Solutions/Intelligent-Video/1-Beyond-Intelligent-Video/IV-CAMPTZ-20-N-W-1B.

Manual Control Options
Use VISCA over IP to control the camera with a Crestron® control system. 1B Cam Manager Software is included for easy configuration from a computer on the network.

See e.g., https://www.crestron.com/Products/Workspace-Solutions/Intelligent-Video/1-Beyond-Intelligent-Video/IV-CAMPTZ-20-N-W-1B.

Multicamera Capability with Automate Systems
Add the IV-CAMPTZ-20-N-W-1B camera to an Automate multicamera system. Automate can be set to autoswitch between multiple 1 Beyond cameras to focus on the active speaking participant. Incorporate popular microphones and DSPs to switch between the presenter and audience.

See e.g., https://www.crestron.com/Products/Workspace-Solutions/Intelligent-Video/1-Beyond-Intelligent-Video/IV-CAMPTZ-20-N-W-1B.

78. ThinkLogix has been damaged by the direct infringement of Crestron and is suffering and will continue to suffer irreparable harm and damages as a result of this infringement.

Count III – Infringement of United States Patent No. 7,924,700

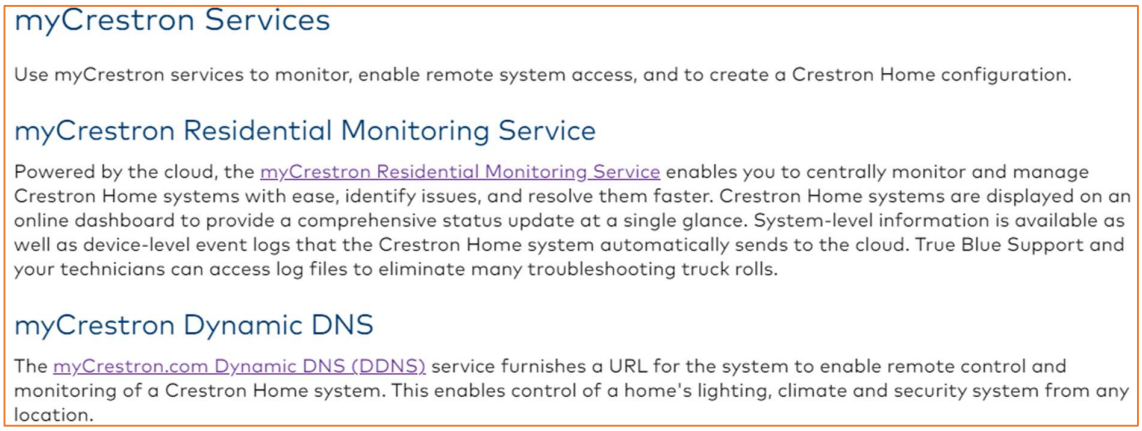
79. ThinkLogix repeats, realleges, and incorporates by reference, as if fully set forth here, the allegations of the preceding paragraphs above.

80. On information and belief, Crestron is in violation 35 U.S. C. § 271(a) with respect to one or more claims of the '700 patent.

81. On information and belief, Crestron (or those acting on its behalf) has made, makes, has used, uses, has sold, sells, has imported, imports, has offered to sell, and/or offers to sell the Crestron Products and Services; and has made, makes, has used, uses, has sold, sells, has imported, imports, has offered to sell, and/or

offers to sell the Crestron System in the United States that infringes (literally and/or under the doctrine of equivalents) at least claim 1 of the '700 patent.

82. On information and belief, one or more components of the Crestron System employs and provides a method comprising a first network device (*e.g.*, cloud services such as myCrestron Services for remote systems) monitoring a physical level of a communication link between the first network device and a second network device (*e.g.*, remotely managed user's device, sensors, cameras, etc.).



myCrestron Services

Use myCrestron services to monitor, enable remote system access, and to create a Crestron Home configuration.

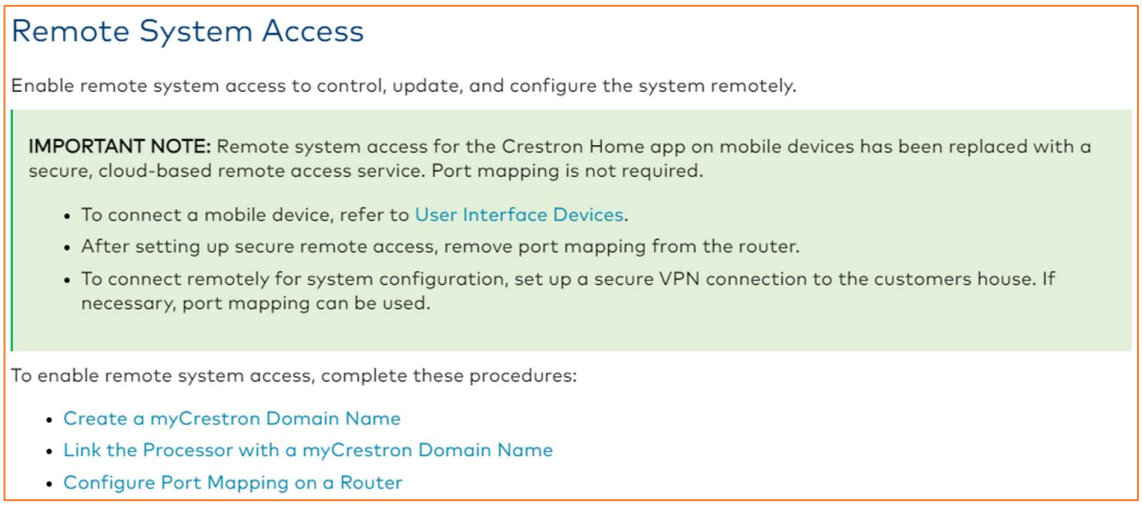
myCrestron Residential Monitoring Service

Powered by the cloud, the myCrestron Residential Monitoring Service enables you to centrally monitor and manage Crestron Home systems with ease, identify issues, and resolve them faster. Crestron Home systems are displayed on an online dashboard to provide a comprehensive status update at a single glance. System-level information is available as well as device-level event logs that the Crestron Home system automatically sends to the cloud. True Blue Support and your technicians can access log files to eliminate many troubleshooting truck rolls.

myCrestron Dynamic DNS

The myCrestron.com Dynamic DNS (DDNS) service furnishes a URL for the system to enable remote control and monitoring of a Crestron Home system. This enables control of a home's lighting, climate and security system from any location.

See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Overview/Overview-myCrestron-Services.htm.



Remote System Access

Enable remote system access to control, update, and configure the system remotely.

IMPORTANT NOTE: Remote system access for the Crestron Home app on mobile devices has been replaced with a secure, cloud-based remote access service. Port mapping is not required.

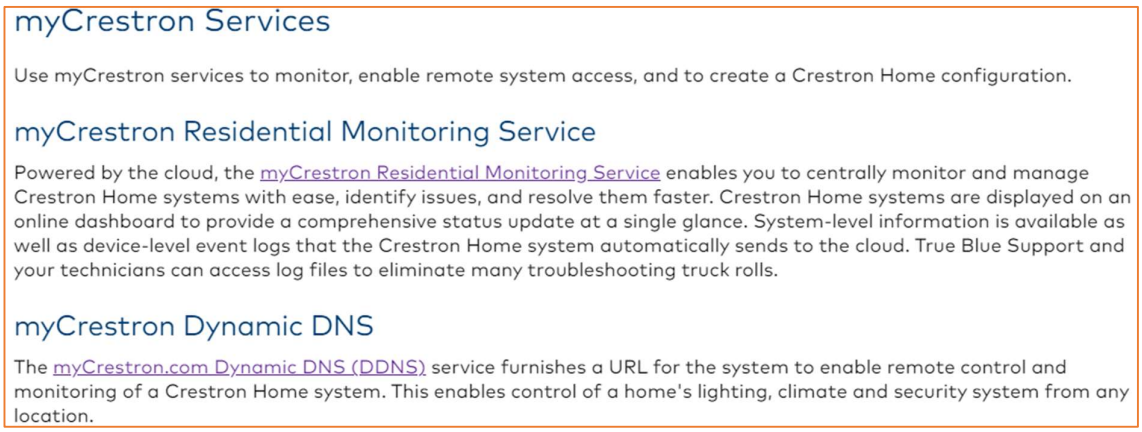
- To connect a mobile device, refer to User Interface Devices.
- After setting up secure remote access, remove port mapping from the router.
- To connect remotely for system configuration, set up a secure VPN connection to the customers house. If necessary, port mapping can be used.

To enable remote system access, complete these procedures:

- Create a myCrestron Domain Name
- Link the Processor with a myCrestron Domain Name
- Configure Port Mapping on a Router

See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Appendix/Enable-Remote-System-Access.htm.

83. On information and belief, one or more components of the Crestron System employs and provides a method comprising the first network device monitoring a second level of the communication link, wherein said monitoring of the second level is usable to detect content errors in data (*e.g.,* identify issue) received over the physical level of the communication link.



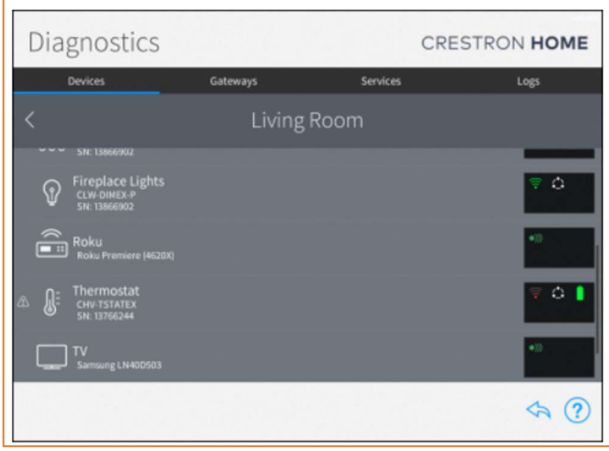
See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Overview/Overview-myCrestron-Services.htm.

84. On information and belief, one or more components of the Crestron System employs and provides a method comprising the first network device enabling transmission of data (*e.g.,* network status and/or device status) over the communication link in response to determining that failures in the physical level of the communication link are below a first threshold and failures in the second level of the communication link are below a second threshold.

Devices

Tap the **Devices** tab to view all of the network devices that are paired with the Crestron Home system, organized by room. Each device reports its network status, firmware status, whether it is included in a scene, and whether it is affected by a scheduled event.

Select a room from the list to view the status of the devices configured for the room.



See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/User-Settings/User-Settings-Diagnostics.htm#Firmware.

Managed Devices

Processors in the **Device List** display the Crestron Home OS firmware version, connection status, and device status.

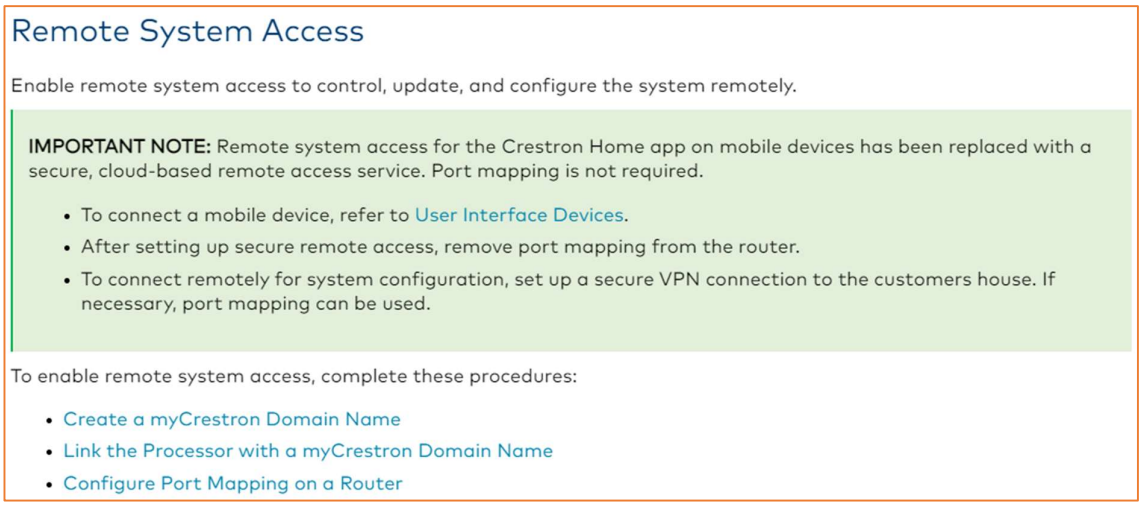
To view the managed devices, select **Devices**.

Status

The processor status is indicated by the color of the device box in the device list:

- **Green:** The processor is online.
- **Red:** The processor is offline. Refer to Troubleshooting.
- **Purple:** The reboot command was initiated from the myCrestron Residential Monitoring Service and the processor is waiting to restart. The device status updates when the processor initiates communication with myCrestron.
  - **Firmware 3.015.0124 or later:** The processor will restart within 20 minutes.
  - **Firmware 3.014.0087 and earlier:** The processor will restart within 25 minutes.
- **Yellow (missed communication):** The processor has not communicated with myCrestron for 40 minutes. Refer to Troubleshooting.
- **Yellow (partially online):** The processor is online but an ancillary device is offline. Refer to Troubleshooting.
- **Blue:** The processor is not monitored.

See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Installer-Config/myCrestron-RMS.htm.



Remote System Access

Enable remote system access to control, update, and configure the system remotely.

IMPORTANT NOTE: Remote system access for the Crestron Home app on mobile devices has been replaced with a secure, cloud-based remote access service. Port mapping is not required.

- To connect a mobile device, refer to User Interface Devices.
- After setting up secure remote access, remove port mapping from the router.
- To connect remotely for system configuration, set up a secure VPN connection to the customers house. If necessary, port mapping can be used.

To enable remote system access, complete these procedures:

- Create a myCrestron Domain Name
- Link the Processor with a myCrestron Domain Name
- Configure Port Mapping on a Router

See e.g., https://docs.crestron.com/en-us/8525/Content/CP4R/Appendix/Enable-Remote-System-Access.htm.

85. ThinkLogix has been damaged by the direct infringement of Crestron and is suffering and will continue to suffer irreparable harm and damages as a result of this infringement.

Count IV – Infringement of United States Patent No. 8,599,835

86. ThinkLogix repeats, realleges, and incorporates by reference, as if fully set forth here, the allegations of the preceding paragraphs above.

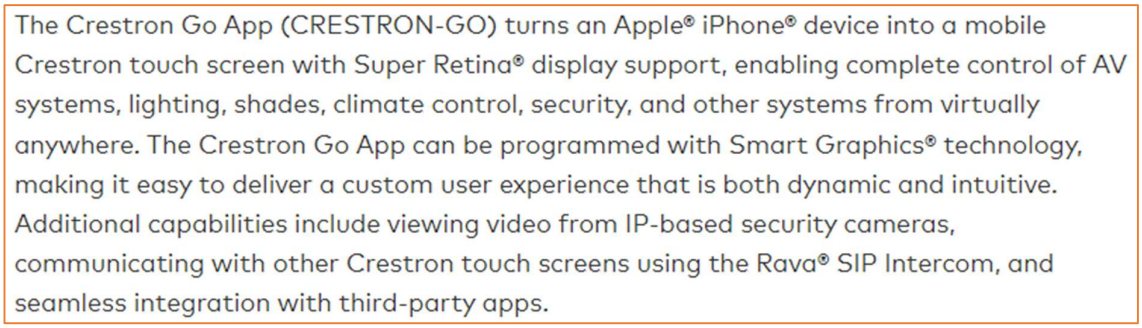
87. On information and belief, Crestron is in violation 35 U.S. C. § 271(a) with respect to one or more claims of the '835 patent.

88. On information and belief, Crestron (or those acting on its behalf) has made, makes, has used, uses, has sold, sells, has imported, imports, has offered to sell, and/or offers to sell the Crestron Products and Services; and has made, makes, has used, uses, has sold, sells, has imported, imports, has offered to sell, and/or

offers to sell the Crestron System in the United States that infringes (literally and/or under the doctrine of equivalents) at least claim 1 of the '835 patent.

89. On information and belief, one or more components of the Crestron System employs and provides a method of receiving a first SIP message (*e.g.,* a SIP INVITE,) from a client (*e.g.,* a participant joining live, or a viewer requesting a recorded stream on-demand,) requesting media (*e.g.,* live or recorded streaming media).

See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-GO.



See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-GO.

CRESTRON-APP-ANDROID

Crestron® App for Android™ OS

A mobile control app for the home, office, or classroom. Integrates Android™ OS devices with a Crestron® control system to monitor and control lights, media, climate, security, and more from anywhere via a mobile broadband or Wi-Fi® network connection.

See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-APP-ANDROID.

The Crestron® App (CRESTRON-APP-ANDROID) turns an Android™ OS device into a mobile Crestron touch screen, enabling complete control of AV systems, lighting, shades, climate control, security, and other systems from virtually anywhere. The Crestron App can be programmed with Smart Graphics® technology, making it easy to deliver a custom user experience that is both dynamic and intuitive. Additional capabilities include viewing video from IP-based security cameras, communicating with other Crestron touch screens using the Rava® SIP Intercom, and seamless integration with third-party apps.

See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-APP-ANDROID.

Streaming Video

View live motion video directly from the Crestron App.[4] Video can be displayed in a window within the Crestron App, allowing video to be viewed while performing other functions within the app. Native support for the H.264 and MJPEG formats allows for the display of live video images from IP cameras and streaming encoders such as the DM-TXRX-100-STR HD streaming transmitter.[5]

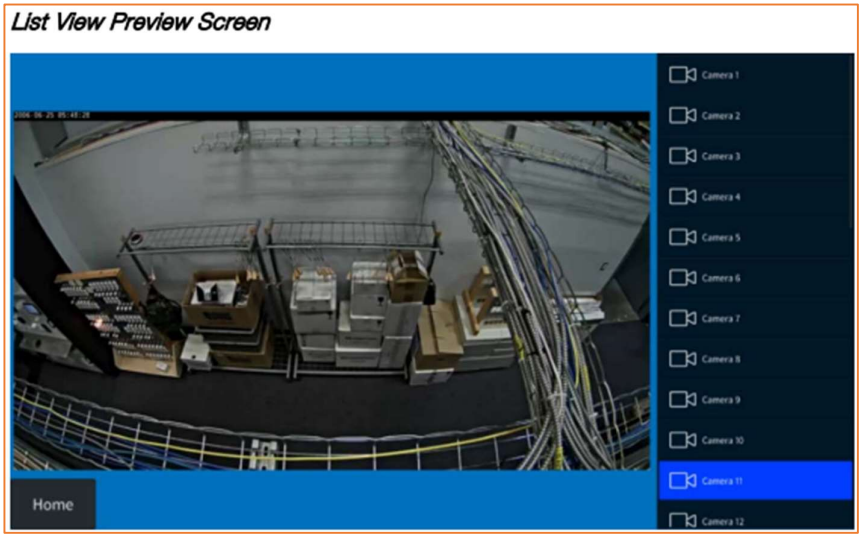
Rava SIP Intercom

Rava® SIP Intercom Technology enables hands-free wireless communication with other touch screens, door stations, and mobile devices. Rava works over Ethernet, supporting 2-way intercom and paging without requiring any special wiring. Use the Crestron App to make or receive calls from other Rava-enabled devices throughout your residence or workplace.

See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-APP-ANDROID.

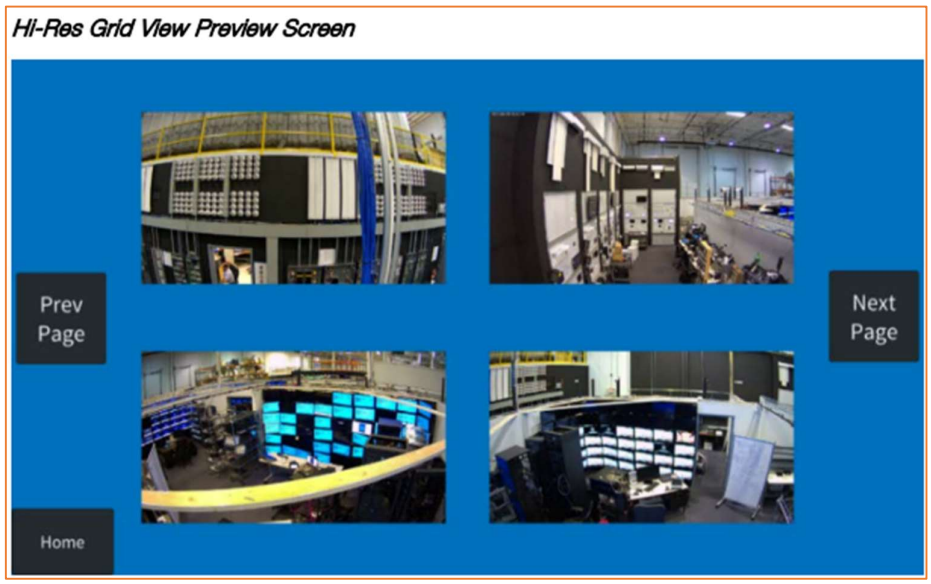
> This document provides the programmer with the best practices to follow when using H.264 and MJPEG video switching on Crestron® touch screens.
>
> As residential installations move from analog to IP-based video for security cameras and door stations, streaming video on Crestron touch screens has become increasingly important.

See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

5.5.1 Introduction

Applications which are built on top of packet switched streaming (PSS) services are classified into on-demand and live information delivery applications. This clause defines procedures to allow faster start up and switching of content for both on-demand and live applications by reducing the client/server interactions to a minimum. Additionally, clients are enabled to reuse the existing RTSP control session and RTP resources while switching to new content.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126234/09.03.00_60/ts_126234v090300p.pdf.

Introduction

The 3GPP Packet Switch Streaming (PSS) provides a framework for Internet Protocol (IP) based streaming applications in by specifying protocols and codecs within the 3GPP system. Protocols for control signalling, capability exchange, media transport, rate adaptation and protection are specified. Codecs for speech, natural and synthetic audio, video, still images, bitmap graphics, vector graphics, timed text and text are specified.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

8 Streaming session and media control

8.1 General

This clause specifies the procedures and protocols used for the IMS based initiation and control of streaming sessions on PSS or MBMS User Service.

ETSI

3GPP TS 26.237 version 9.2.0 Release 9 **25** **ETSI TS 126 237 V9.2.0 (2010-04)**

The client shall use SIP to initiate and control PSS and MBMS streaming sessions. Once a PSS streaming session is established, the client shall use RTSP protocols to perform media control.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

8.2.3 PSS Streaming Session initiation

8.2.3.1 General description

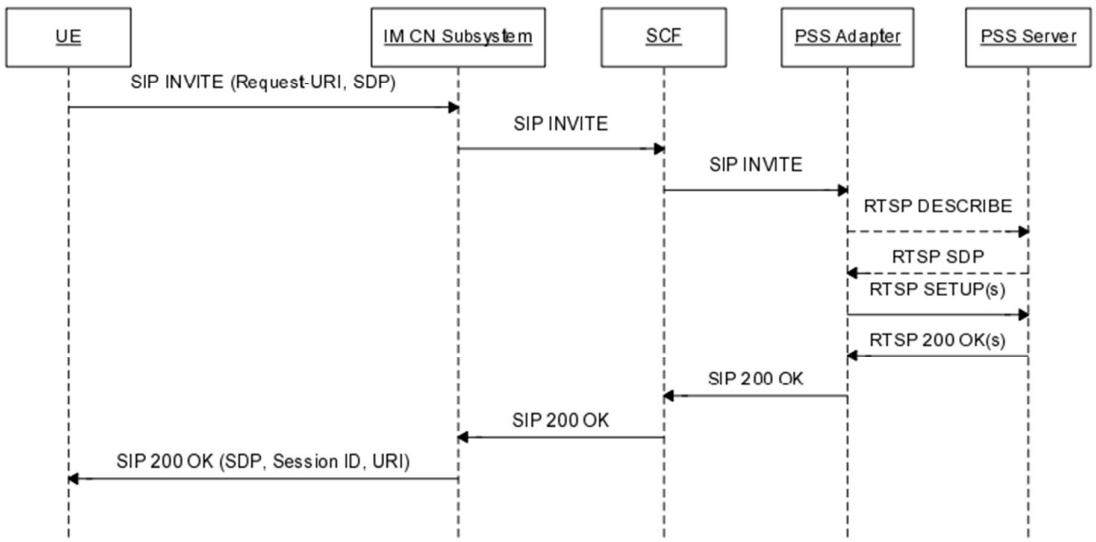


Figure 7: IMS based PSS initiation

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

8.2.3.2 Procedures at the UE

The UE shall generate an initial INVITE request according to TS 24.229 [7] with the following additions:

- The Request-URI is related to the PSS session that the user wants to activate.
  - For an On Demand service, it shall be composed of a user part and a domain part, as follows:
    - A user part containing the content identifier in a free string format.
      - Content identifier is constructed by 'PSS_COD_<content-id>', wherein content-id shall be globalContentID defined in [27].
    - A domain part containing the content provider domain name, obtained from the SSF.
  - For Live content, it shall contain the PSI (Public Service Identity) of the "Live stream@<domain name>", wherein the domain name is obtained from SSF".
- The To header shall contain the same URI as in the Request-URI.
- The Recv-Info header shall be set to nil [42].

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

90. On information and belief, one or more components of the Crestron System employs and provides a method of sending, using a processor, a notify SIP message (*e.g.,* 200 OK) to the client, wherein the notify SIP message comprises a contact header, and wherein the contact header comprises a parameter (*e.g.,* Session ID) that indicates the requested media is to be streamed to the client.

> The Crestron Go App (CRESTRON-GO) turns an Apple® iPhone® device into a mobile Crestron touch screen with Super Retina® display support, enabling complete control of AV systems, lighting, shades, climate control, security, and other systems from virtually anywhere. The Crestron Go App can be programmed with Smart Graphics® technology, making it easy to deliver a custom user experience that is both dynamic and intuitive. Additional capabilities include viewing video from IP-based security cameras, communicating with other Crestron touch screens using the Rava® SIP Intercom, and seamless integration with third-party apps.

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Streaming Video

View live motion video directly from the Crestron App.[4] Video can be displayed in a window within the Crestron App, allowing video to be viewed while performing other functions within the app. Native support for the H.264 and MJPEG formats allows for the display of live video images from IP cameras and streaming encoders such as the DM-TXRX-100-STR HD streaming transmitter.[5]

Rava SIP Intercom

Rava® SIP Intercom Technology enables hands-free wireless communication with other touch screens, door stations, and mobile devices. Rava works over Ethernet, supporting 2-way intercom and paging without requiring any special wiring. Use the Crestron App to make or receive calls from other Rava-enabled devices throughout your residence or workplace.

See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-APP-ANDROID.

8.2.3 PSS Streaming Session initiation

8.2.3.1 General description

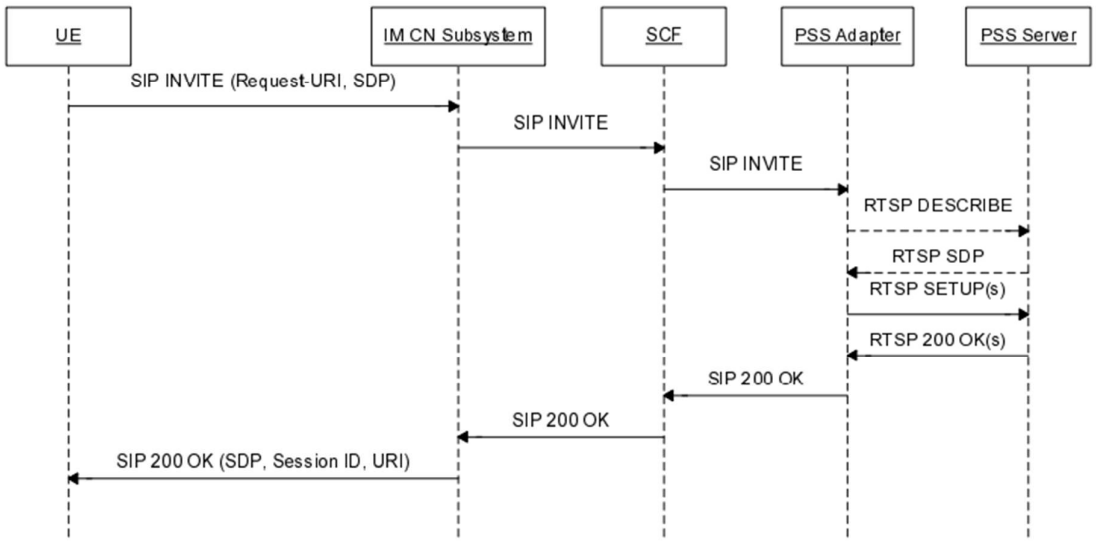

Figure 7: IMS based PSS initiation

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

> The client shall use SIP to initiate and control PSS and MBMS streaming sessions. Once a PSS streaming session is established, the client shall use RTSP protocols to perform media control.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

> - PSS Server: Packet Switch Streaming server function as described in 3GPP TS 26.234 [8]. It functionally contains media control and media delivery functions.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

> If the Request-URI contains a content identifier in the user part and a domain name in the domain part, the SCF determines that the PSS streaming session is initiated for On Demand content. In this case, the SCF shall select a suitable PSS adapter and forwards the SIP INVITE to the selected PSS adapter by changing the Request-URI accordingly. The SCF shall not change the user part of the To header in order to keep the content identifier in the INVITE request.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

> If the request-URI contains the PSI " Live Stream", the SCF determines that the PSS streaming session is initiated for Live content. In this case, the SCF shall select a suitable PSS adapter and forwards the SIP INVITE to the selected PSS adapter. The SCF shall include the list of authorized Live content channels for the user in the SIP INVITE transmitted to the PSS adapter by including the package identifiers containing to the list of authorized Live content channels for the session and optionally transmitting the list of authorized RTSP URIs.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

91. On information and belief, one or more components of the Crestron System employs and provides a method of streaming the requested media to the client based in part on the parameter.

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When receiving any SIP response, the UE shall examine the media parameters in the received SDP: the UE shall immediately setup the TCP connection carrying RTSP. The UE shall fetch the RTSP session ID from the SDP answer contained in the SIP response. This RTSP session ID shall be used for RTSP media control messages.

After SIP session establishment, the UE can exchange RTSP messages to start to receive media streams. The UE shall send an RTSP PLAY message to the PSS adapter according to 3GPP TS 26.234 [8].

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

The client shall use SIP to initiate and control PSS and MBMS streaming sessions. Once a PSS streaming session is established, the client shall use RTSP protocols to perform media control.

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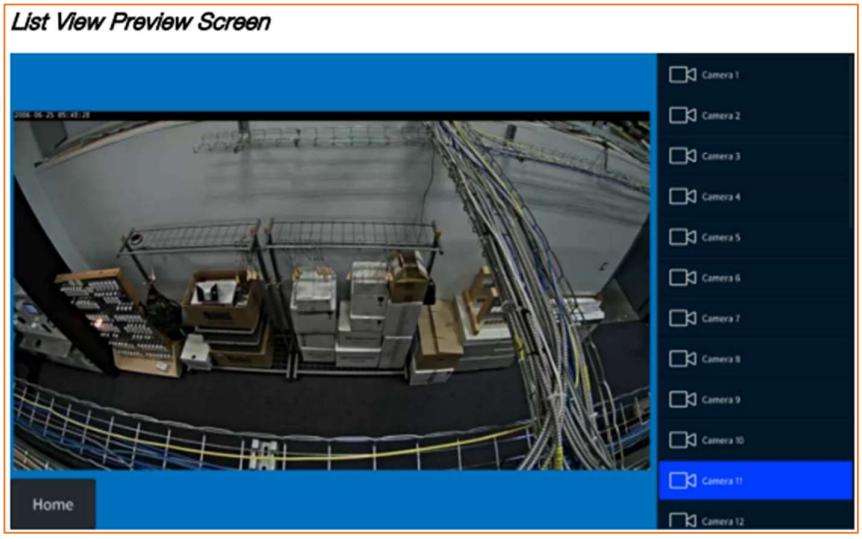
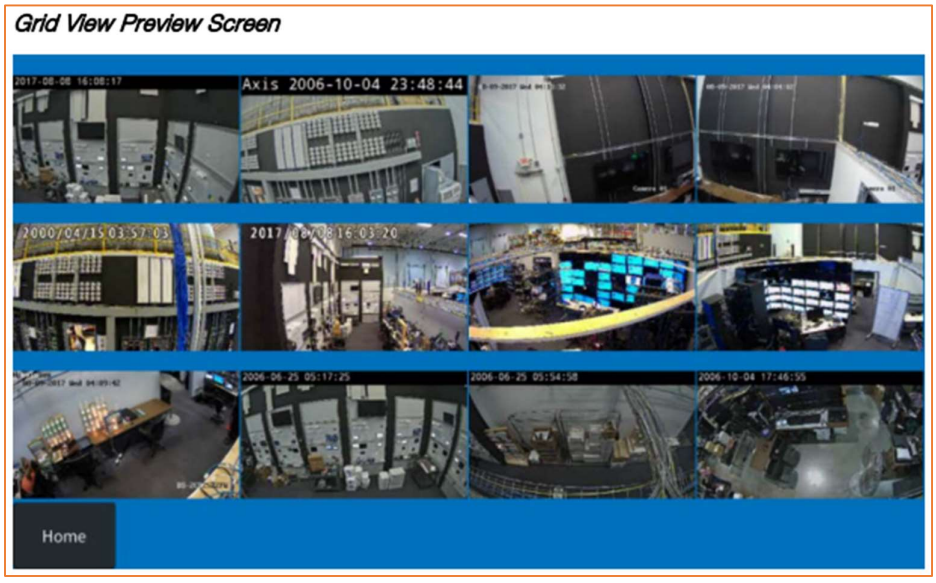
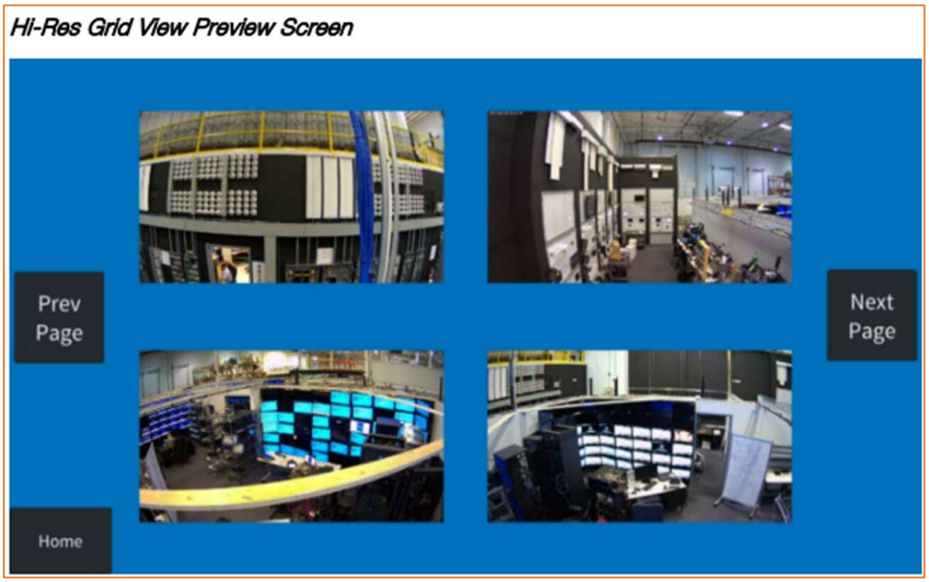


See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

92. ThinkLogix has been damaged by the direct infringement of Crestron and is suffering and will continue to suffer irreparable harm and damages as a result of this infringement.

Count V – Infringement of United States Patent No. 9,231,994

93. ThinkLogix repeats, realleges, and incorporates by reference, as if fully set forth here, the allegations of the preceding paragraphs above.

94. On information and belief, Crestron is in violation 35 U.S. C. § 271(a) with respect to one or more claims of the '994 patent.

95. On information and belief, Crestron (or those acting on its behalf) made, used, sold, imported and/or offered to sell the Crestron Products and Services; and made, used, sold, sold access to, imported, offered to sell and/or offered to sell access to the Crestron System in the United States that infringed

(literally and/or under the doctrine of equivalents) at least claim 19 of the '994 patent.

96. On information and belief, one or more components of the Crestron System comprises a system comprising one or more processors configured to send a first session invitation protocol (SIP) message (*e.g.*, SIP INVITE) from a first device (*e.g.*, UE or client's device having Crestron App) to a second device (*e.g.*, Crestron's server, or processing device managing IP cameras), wherein a first header field of the first SIP message includes a first indicator indicating a request for a media stream (*e.g.*, live, or recorded stream on-demand) and a source (*e.g.*, Request-URI) of the requested media stream, wherein the first SIP message comprises a contact header and wherein the contact header comprises a parameter (*e.g.*, Content identifier, or PSI) that indicates the requested media is to be streamed to the first device.

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CRESTRON-APP-ANDROID

Crestron® App for Android™ OS

A mobile control app for the home, office, or classroom. Integrates Android™ OS devices with a Crestron® control system to monitor and control lights, media, climate, security, and more from anywhere via a mobile broadband or Wi-Fi® network connection.

See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-APP-ANDROID.

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Streaming Video

View live motion video directly from the Crestron App.[4] Video can be displayed in a window within the Crestron App, allowing video to be viewed while performing other functions within the app. Native support for the H.264 and MJPEG formats allows for the display of live video images from IP cameras and streaming encoders such as the DM-TXRX-100-STR HD streaming transmitter.[5]

Rava SIP Intercom

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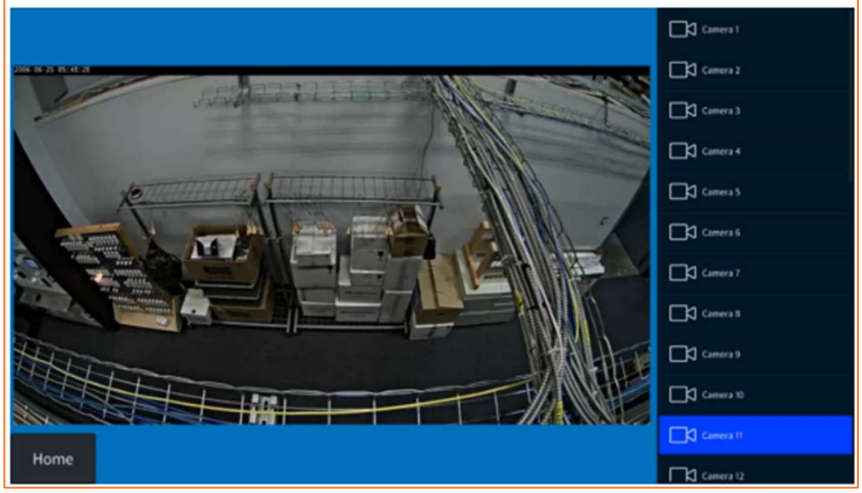
See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-APP-ANDROID.

This document provides the programmer with the best practices to follow when using H.264 and MJPEG video switching on Crestron® touch screens.

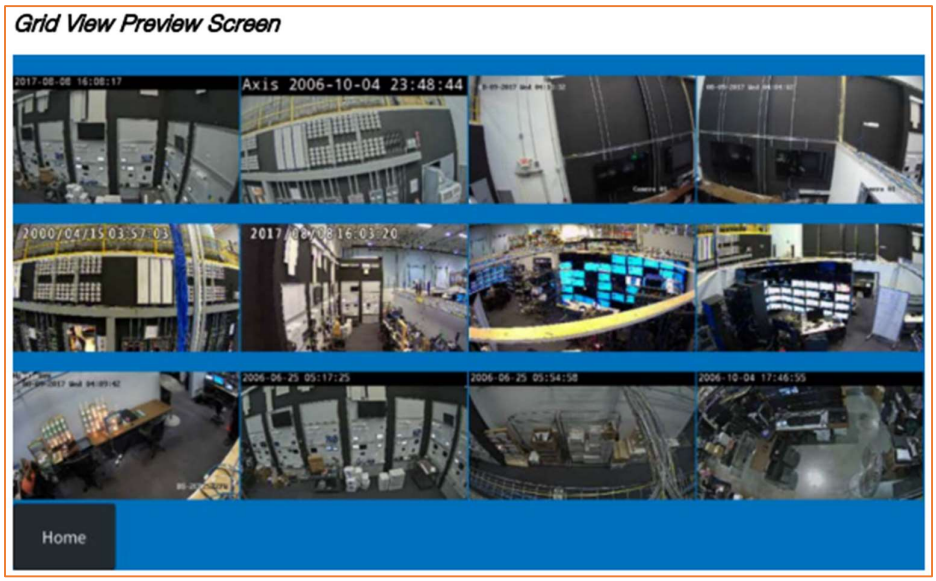
As residential installations move from analog to IP-based video for security cameras and door stations, streaming video on Crestron touch screens has become increasingly important.

See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

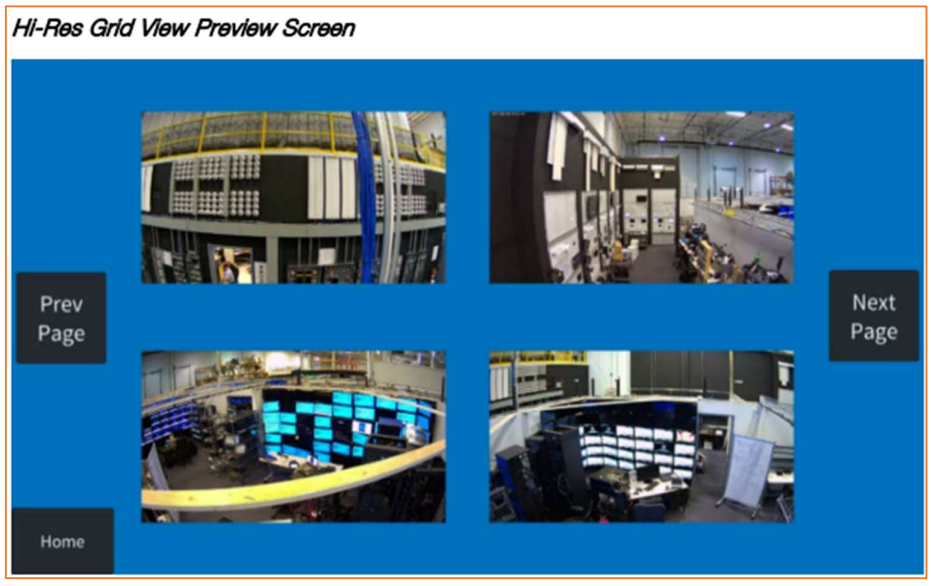
List View Preview Screen



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

5.5.1 Introduction

Applications which are built on top of packet switched streaming (PSS) services are classified into on-demand and live information delivery applications. This clause defines procedures to allow faster start up and switching of content for both on-demand and live applications by reducing the client/server interactions to a minimum. Additionally, clients are enabled to reuse the existing RTSP control session and RTP resources while switching to new content.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126234/09.03.00_60/ts_126234v090300p.pdf.

Introduction

The 3GPP Packet Switch Streaming (PSS) provides a framework for Internet Protocol (IP) based streaming applications in by specifying protocols and codecs within the 3GPP system. Protocols for control signalling, capability exchange, media transport, rate adaptation and protection are specified. Codecs for speech, natural and synthetic audio, video, still images, bitmap graphics, vector graphics, timed text and text are specified.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

8 Streaming session and media control

8.1 General

This clause specifies the procedures and protocols used for the IMS based initiation and control of streaming sessions on PSS or MBMS User Service.

ETSI

3GPP TS 26.237 version 9.2.0 Release 9 **25** **ETSI TS 126 237 V9.2.0 (2010-04)**

The client shall use SIP to initiate and control PSS and MBMS streaming sessions. Once a PSS streaming session is established, the client shall use RTSP protocols to perform media control.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

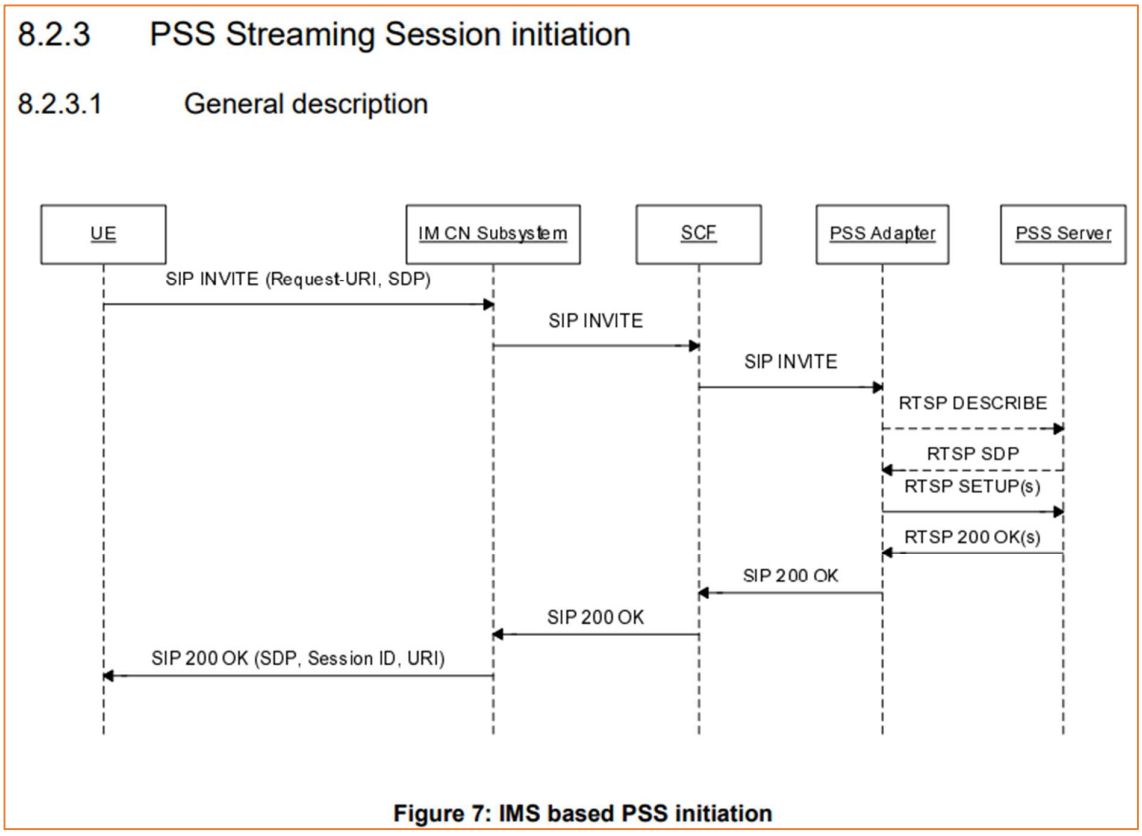


Figure 7: IMS based PSS initiation

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

> 8.2.3.2 Procedures at the UE
>
> The UE shall generate an initial INVITE request according to TS 24.229 [7] with the following additions:
>
> - The Request-URI is related to the PSS session that the user wants to activate.
>   - For an On Demand service, it shall be composed of a user part and a domain part, as follows:
>   - A user part containing the content identifier in a free string format.
>   - Content identifier is constructed by 'PSS_COD_<content-id>', wherein content-id shall be globalContentID defined in [27].
>   - A domain part containing the content provider domain name, obtained from the SSF.
>   - For Live content, it shall contain the PSI (Public Service Identity) of the "Live stream@<domain name>", wherein the domain name is obtained from SSF".
> - The To header shall contain the same URI as in the Request-URI.
> - The Recv-Info header shall be set to nil [42].

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

97. On information and belief, one or more components of the Crestron System comprises one or more processors configured to receive a second SIP message (*e.g.,* 200 OK) from the second device at the first device, wherein a second header field of the second SIP message includes a second indicator indicating acceptance of the request for the media stream.

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> **Streaming Video**
> View live motion video directly from the Crestron App.[4] Video can be displayed in a window within the Crestron App, allowing video to be viewed while performing other functions within the app. Native support for the H.264 and MJPEG formats allows for the display of live video images from IP cameras and streaming encoders such as the DM-TXRX-100-STR HD streaming transmitter.[5]
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8.2.3 PSS Streaming Session initiation

8.2.3.1 General description

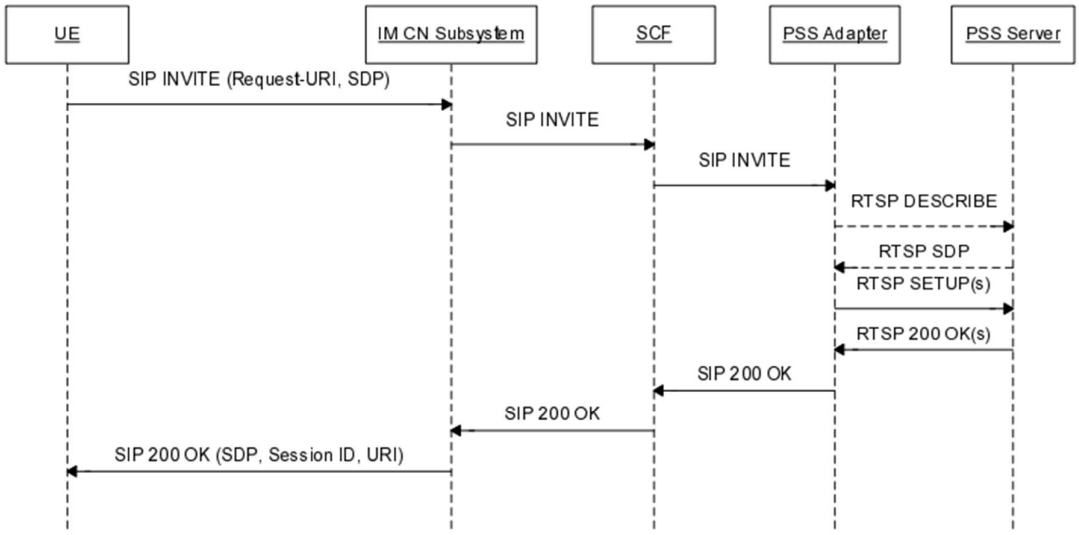

Figure 7: IMS based PSS initiation

NOTE 1: This sequence is simplified and does not e.g. show session progress messages and the ACK message from the UE in response to the reception of 200 OK.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

Upon receipt of a SIP INVITE message, the PSS Adapter performs the following actions:

- It shall resolve the RTSP URI based on the R-URI, the SDP parameters and the selected PSS Server.
- It may send a DESCRIBE message to the PSS Server to fetch the SDP file.
- It shall construct and send the RTSP SETUP message(s) to setup the relevant media streams.
- Return the final SDP to the UE in the SIP 200 OK.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

98. On information and belief, one or more components of the Crestron System comprises one or more processors configured to send a third SIP (*e.g.,* ACK message) message from the first device to the second device, wherein a third header field of the third SIP message includes a third indicator indicating that the second device initiate streaming of the requested media stream.

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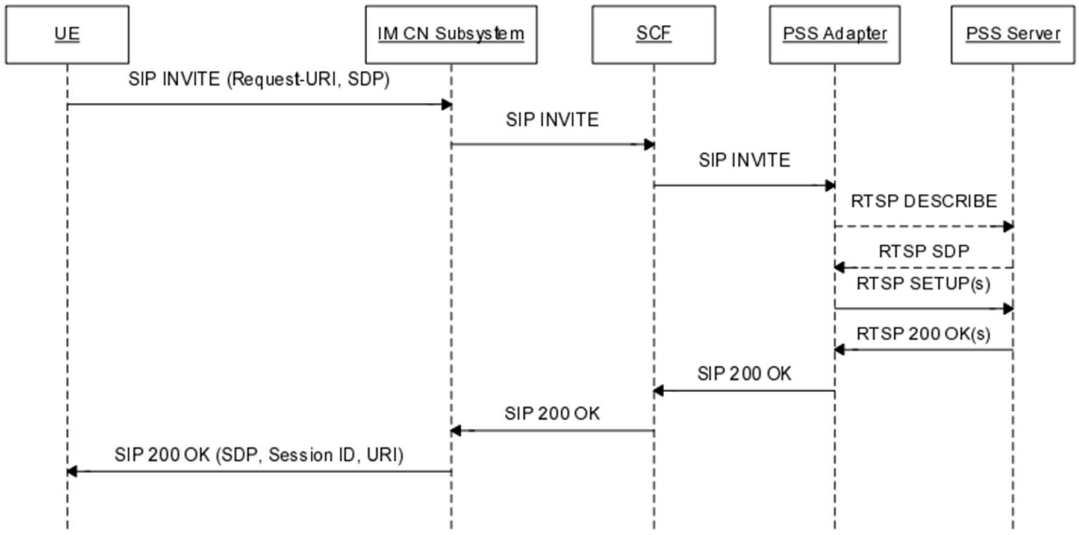
8.2.3 PSS Streaming Session initiation

8.2.3.1 General description



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See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

When receiving any SIP response, the UE shall examine the media parameters in the received SDP: the UE shall immediately setup the TCP connection carrying RTSP. The UE shall fetch the RTSP session ID from the SDP answer contained in the SIP response. This RTSP session ID shall be used for RTSP media control messages.

After SIP session establishment, the UE can exchange RTSP messages to start to receive media streams. The UE shall send an RTSP PLAY message to the PSS adapter according to 3GPP TS 26.234 [8].

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

99. On information and belief, one or more components of the Crestron System comprises one or more processors configured to receive the requested media stream (*e.g.*, voice, video, *etc.*) from the second device at the first device.

> The Crestron Go App (CRESTRON-GO) turns an Apple® iPhone® device into a mobile Crestron touch screen with Super Retina® display support, enabling complete control of AV systems, lighting, shades, climate control, security, and other systems from virtually anywhere. The Crestron Go App can be programmed with Smart Graphics® technology, making it easy to deliver a custom user experience that is both dynamic and intuitive. Additional capabilities include viewing video from IP-based security cameras, communicating with other Crestron touch screens using the Rava® SIP Intercom, and seamless integration with third-party apps.

See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-GO.

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View live motion video directly from the Crestron App.[4] Video can be displayed in a window within the Crestron App, allowing video to be viewed while performing other functions within the app. Native support for the H.264 and MJPEG formats allows for the display of live video images from IP cameras and streaming encoders such as the DM-TXRX-100-STR HD streaming transmitter.[5]

Rava SIP Intercom

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The client shall use SIP to initiate and control PSS and MBMS streaming sessions. Once a PSS streaming session is established, the client shall use RTSP protocols to perform media control.

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- PSS Server: Packet Switch Streaming server function as described in 3GPP TS 26.234 [8]. It functionally contains media control and media delivery functions.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

If the Request-URI contains a content identifier in the user part and a domain name in the domain part, the SCF determines that the PSS streaming session is initiated for On Demand content. In this case, the SCF shall select a suitable PSS adapter and forwards the SIP INVITE to the selected PSS adapter by changing the Request-URI accordingly. The SCF shall not change the user part of the To header in order to keep the content identifier in the INVITE request.

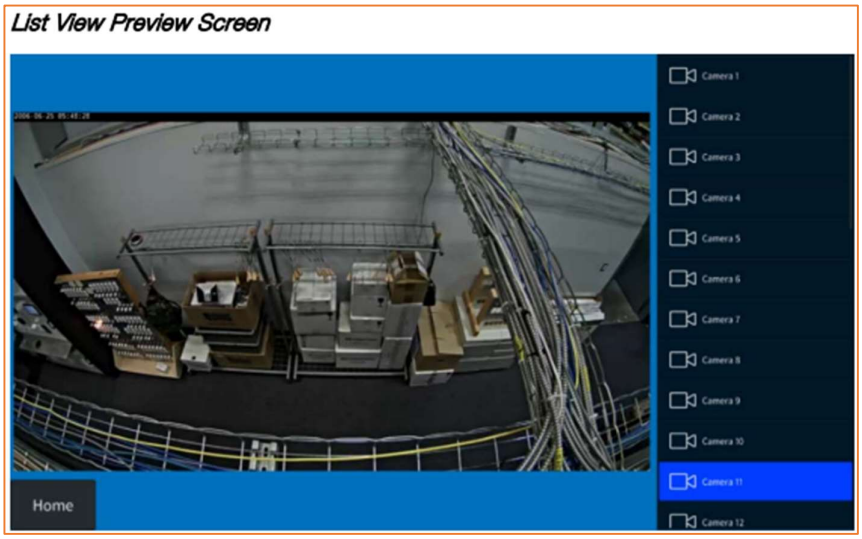
See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

> If the request-URI contains the PSI " Live Stream", the SCF determines that the PSS streaming session is initiated for Live content. In this case, the SCF shall select a suitable PSS adapter and forwards the SIP INVITE to the selected PSS adapter. The SCF shall include the list of authorized Live content channels for the user in the SIP INVITE transmitted to the PSS adapter by including the package identifiers containing to the list of authorized Live content channels for the session and optionally transmitting the list of authorized RTSP URIs.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

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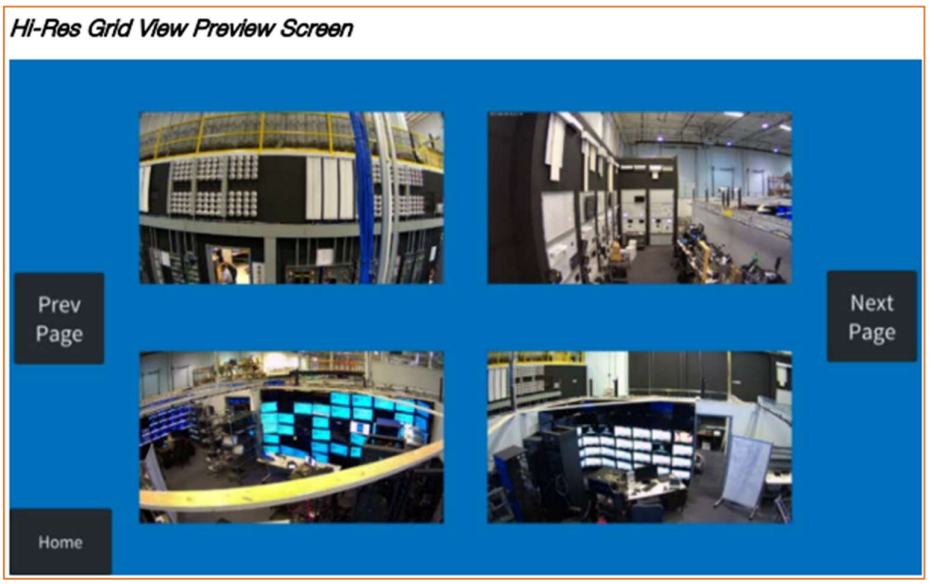


See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

100. ThinkLogix has been damaged by the direct infringement of Crestron and has suffered irreparable harm and damages as a result of this infringement.

Count VI – Infringement of United States Patent No. 9,906,573

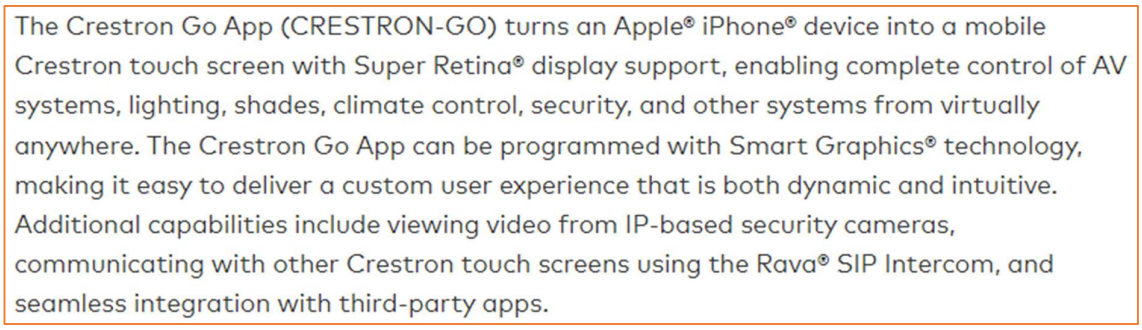
101. ThinkLogix repeats, realleges, and incorporates by reference, as if fully set forth here, the allegations of the preceding paragraphs above.

102. On information and belief, Crestron is in violation 35 U.S. C. § 271(a) with respect to one or more claims of the '573 patent.

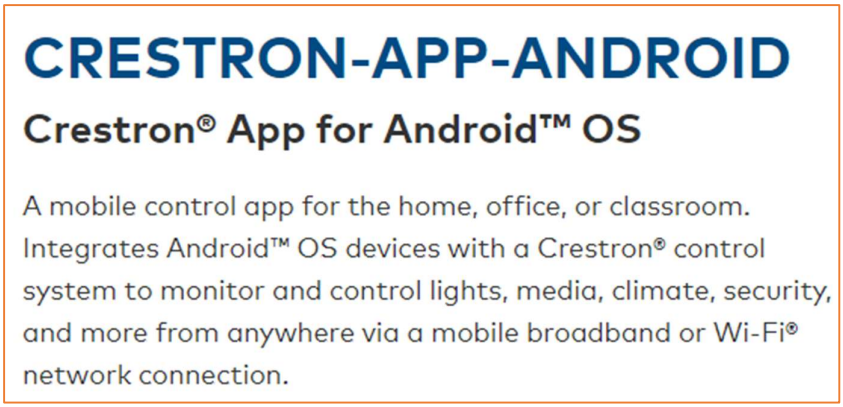
103. On information and belief, Crestron (or those acting on its behalf) made, used, sold, imported and/or offered to sell the Crestron Products and Services; and made, used, sold, sold access to, imported, offered to sell and/or offered to sell access to the Crestron System in the United States that infringed (literally and/or under the doctrine of equivalents) at least claim 18 of the '573 patent.

104. On information and belief, one or more components of the Crestron System comprises one or more processors configured to send a first session invitation protocol (SIP) message (*e.g.*, SIP INVITE) to a media source device (*e.g.*, server), wherein a first header field of the first SIP message includes a first indicator indicating a request for a media stream (*e.g.*, live, or recorded stream on-demand), wherein the first indicator includes a uniform resource identifier (URI) identifying (*e.g.*, Request-URI) a source of the requested media stream and wherein a parameter (*e.g.*, Content identifier, or PSI) of the URI indicates that streaming is to be used.

See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-GO.



See e.g., https://www.crestron.com/Products/Control-Hardware-Software/Software/Apps/CRESTRON-GO.



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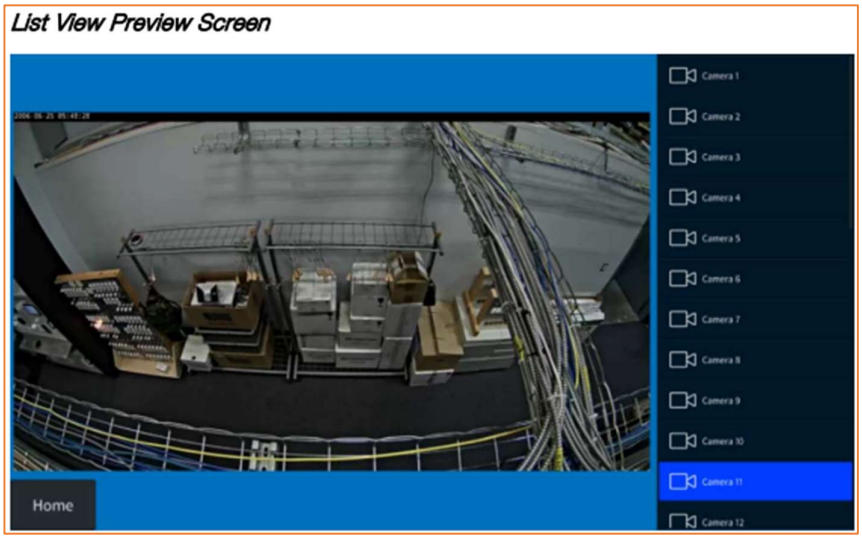
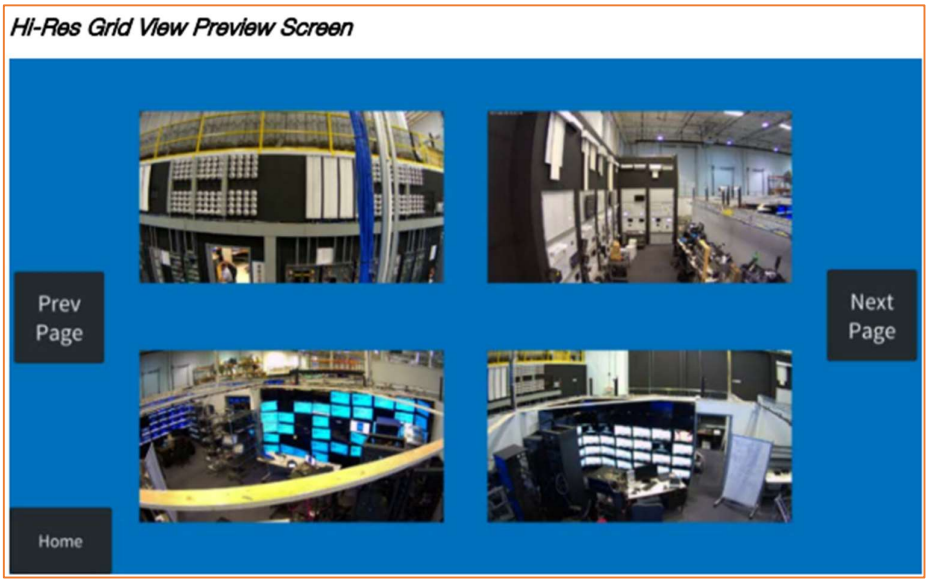
> This document provides the programmer with the best practices to follow when using H.264 and MJPEG video switching on Crestron® touch screens.
>
> As residential installations move from analog to IP-based video for security cameras and door stations, streaming video on Crestron touch screens has become increasingly important.

See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

> 5.5.1 Introduction
>
> Applications which are built on top of packet switched streaming (PSS) services are classified into on-demand and live information delivery applications. This clause defines procedures to allow faster start up and switching of content for both on-demand and live applications by reducing the client/server interactions to a minimum. Additionally, clients are enabled to reuse the existing RTSP control session and RTP resources while switching to new content.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126234/09.03.00_60/ts_126234v090300p.pdf.

> Introduction
>
> The 3GPP Packet Switch Streaming (PSS) provides a framework for Internet Protocol (IP) based streaming applications in by specifying protocols and codecs within the 3GPP system. Protocols for control signalling, capability exchange, media transport, rate adaptation and protection are specified. Codecs for speech, natural and synthetic audio, video, still images, bitmap graphics, vector graphics, timed text and text are specified.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

8 Streaming session and media control

8.1 General

This clause specifies the procedures and protocols used for the IMS based initiation and control of streaming sessions on PSS or MBMS User Service.

The client shall use SIP to initiate and control PSS and MBMS streaming sessions. Once a PSS streaming session is established, the client shall use RTSP protocols to perform media control.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

8.2.3 PSS Streaming Session initiation

8.2.3.1 General description

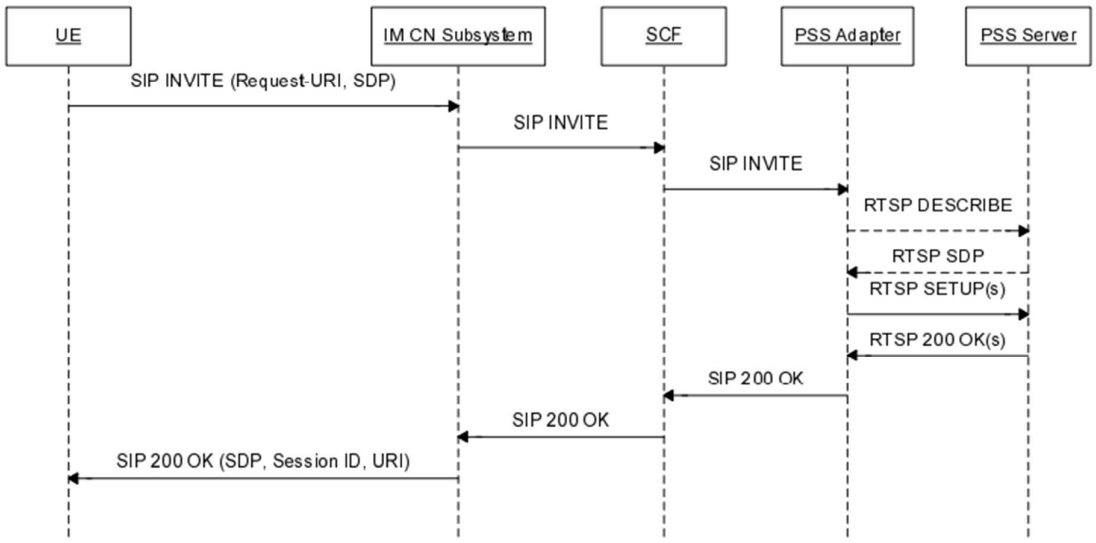


Figure 7: IMS based PSS initiation

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

> 8.2.3.2 Procedures at the UE
>
> The UE shall generate an initial INVITE request according to TS 24.229 [7] with the following additions:
>
> - The Request-URI is related to the PSS session that the user wants to activate.
>   - For an On Demand service, it shall be composed of a user part and a domain part, as follows:
>   - A user part containing the content identifier in a free string format.
>   - Content identifier is constructed by 'PSS_COD_<content-id>', wherein content-id shall be globalContentID defined in [27].
>   - A domain part containing the content provider domain name, obtained from the SSF.
>   - For Live content, it shall contain the PSI (Public Service Identity) of the "Live stream@<domain name>", wherein the domain name is obtained from SSF".
> - The To header shall contain the same URI as in the Request-URI.
> - The Recv-Info header shall be set to nil [42].

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

105. On information and belief, one or more components of the Crestron System comprises one or more processors configured to send a second SIP message (*e.g.,* ACK message) to the media source device, wherein a header field of the second SIP message includes a second indicator indicating that the media source device initiate streaming of the requested media stream.

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> **Streaming Video**
> View live motion video directly from the Crestron App.[4] Video can be displayed in a window within the Crestron App, allowing video to be viewed while performing other functions within the app. Native support for the H.264 and MJPEG formats allows for the display of live video images from IP cameras and streaming encoders such as the DM-TXRX-100-STR HD streaming transmitter.[5]
>
> **Rava SIP Intercom**
> Rava® SIP Intercom Technology enables hands-free wireless communication with other touch screens, door stations, and mobile devices. Rava works over Ethernet, supporting 2-way intercom and paging without requiring any special wiring. Use the Crestron App to make or receive calls from other Rava-enabled devices throughout your residence or workplace.

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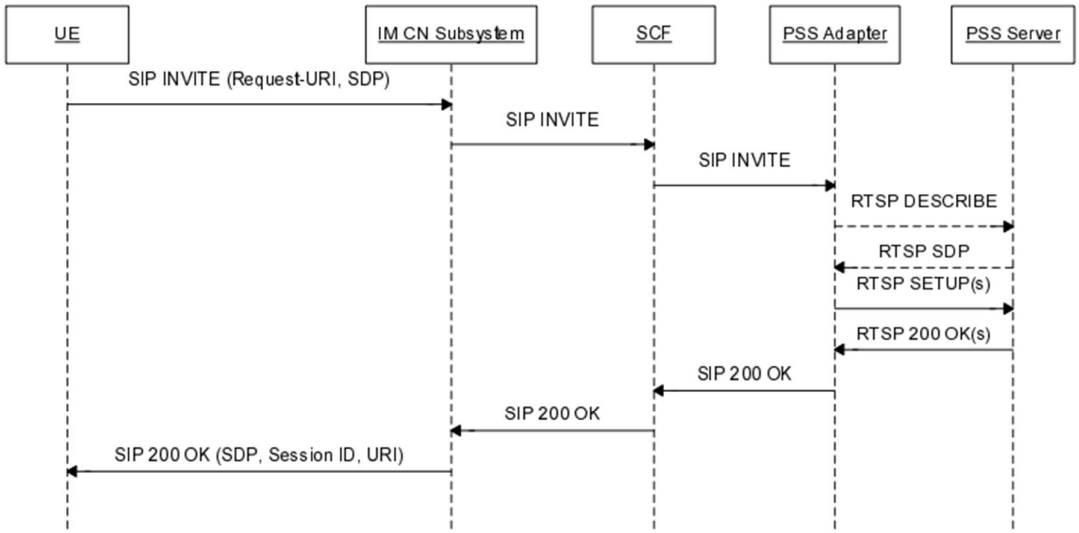

Figure 7: IMS based PSS initiation

NOTE 1: This sequence is simplified and does not e.g. show session progress messages and the ACK message from the UE in response to the reception of 200 OK.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

When receiving any SIP response, the UE shall examine the media parameters in the received SDP: the UE shall immediately setup the TCP connection carrying RTSP. The UE shall fetch the RTSP session ID from the SDP answer contained in the SIP response. This RTSP session ID shall be used for RTSP media control messages.

After SIP session establishment, the UE can exchange RTSP messages to start to receive media streams. The UE shall send an RTSP PLAY message to the PSS adapter according to 3GPP TS 26.234 [8].

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

106. On information and belief, one or more components of the Crestron System comprises one or more processors configured to receive the requested media stream from the media source device.

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The client shall use SIP to initiate and control PSS and MBMS streaming sessions. Once a PSS streaming session is established, the client shall use RTSP protocols to perform media control.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

- PSS Server: Packet Switch Streaming server function as described in 3GPP TS 26.234 [8]. It functionally contains media control and media delivery functions.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

If the Request-URI contains a content identifier in the user part and a domain name in the domain part, the SCF determines that the PSS streaming session is initiated for On Demand content. In this case, the SCF shall select a suitable PSS adapter and forwards the SIP INVITE to the selected PSS adapter by changing the Request-URI accordingly. The SCF shall not change the user part of the To header in order to keep the content identifier in the INVITE request.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

> If the request-URI contains the PSI " Live Stream", the SCF determines that the PSS streaming session is initiated for Live content. In this case, the SCF shall select a suitable PSS adapter and forwards the SIP INVITE to the selected PSS adapter. The SCF shall include the list of authorized Live content channels for the user in the SIP INVITE transmitted to the PSS adapter by including the package identifiers containing to the list of authorized Live content channels for the session and optionally transmitting the list of authorized RTSP URIs.

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

107. On information and belief, one or more components of the Crestron System comprises one or more processors configured to control playback (*e.g.*, RTSP PLAY, RTSP PAUSE, etc.) of the requested media stream without effecting receipt of the requested media stream.

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8.2.4.1 General Description

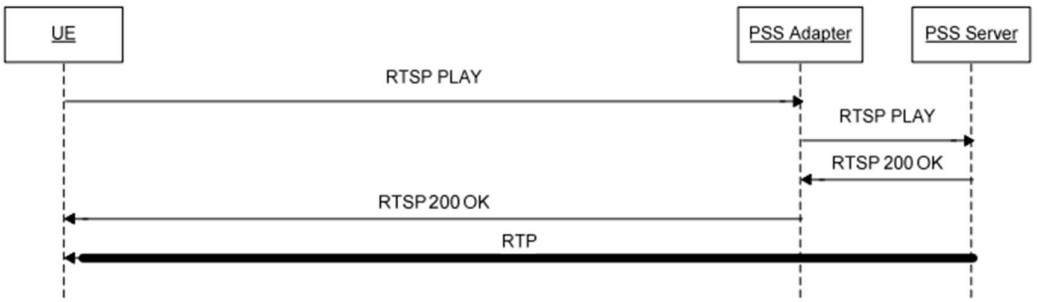

Figure 8: Initial Payback

See e.g.,

https://www.etsi.org/deliver/etsi_ts/126200_126299/126237/09.02.00_60/ts_126237v090200p.pdf.

8.2.4.2 Procedures at the UE

The UE shall support the following RTSP methods for RTSP playback control:

- PLAY (UE to PSS Adapter).
- PAUSE (UE to PSS Adapter).
- GET_PARAMETER (UE to PSS Adapter).
- SET_PARAMETER (UE to PSS Adapter).
- OPTIONS (UE to PSS Adapter).

When receiving any SIP response, the UE shall examine the media parameters in the received SDP: the UE shall immediately setup the TCP connection carrying RTSP. The UE shall fetch the RTSP session ID from the SDP answer contained in the SIP response. This RTSP session ID shall be used for RTSP media control messages.

After SIP session establishment, the UE can exchange RTSP messages to start to receive media streams. The UE shall send an RTSP PLAY message to the PSS adapter according to 3GPP TS 26.234 [8].

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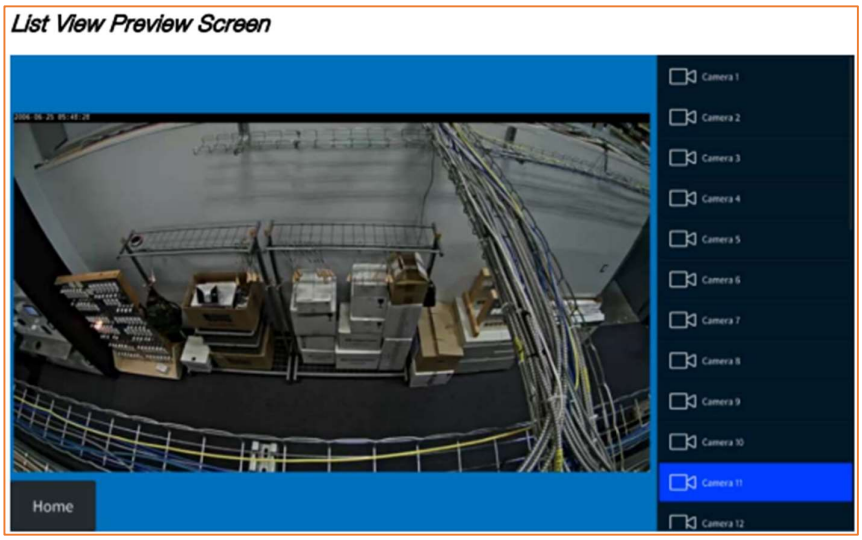

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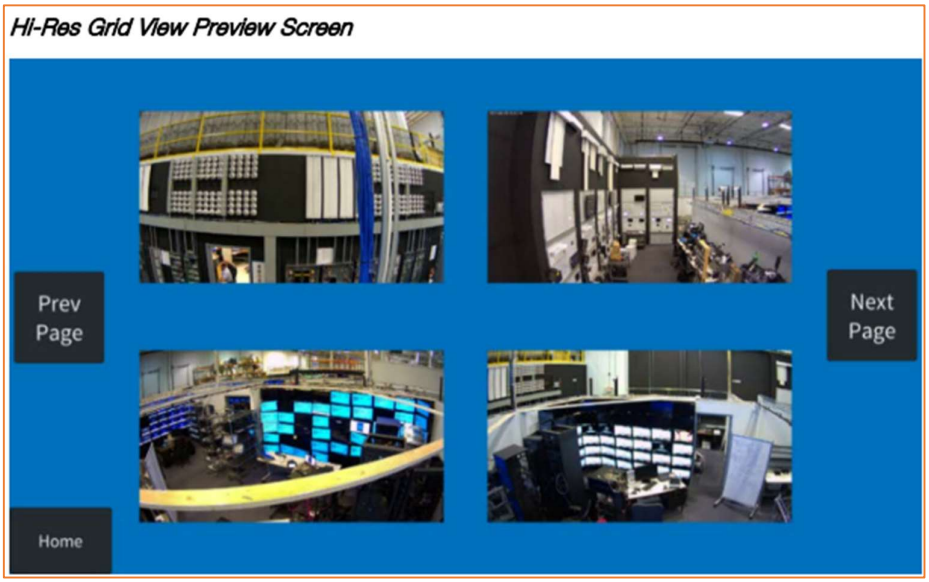
See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.



See e.g., https://www.crestron.com/getmedia/49acf092-1460-42b7-96ee-5f3af82ac3fb/mg_bp_streaming_video_switching_touch_screens.

108. ThinkLogix has been damaged by the direct infringement of Crestron and has suffered damages as a result of this infringement.

JURY DEMANDED

109. Pursuant to Federal Rule of Civil Procedure 38(b), ThinkLogix hereby requests a trial by jury on all issues so triable.

PRAYER FOR RELIEF

110. ThinkLogix respectfully requests this Court to enter judgment in ThinkLogix's favor and against Crestron as follows:

a. finding that Crestron has infringed one or more claims of the '898 patent under 35 U.S.C. § 271(a);

b. finding that Crestron has infringed one or more claims of the '467 patent under 35 U.S.C. § 271(a);

c. finding that Crestron has infringed one or more claims of the '700 patent under 35 U.S.C. § 271(a);

d. finding that Crestron has infringed one or more claims of the '835 patent under 35 U.S.C. § 271(a);

e. finding that Crestron has infringed one or more claims of the '994 patent under 35 U.S.C. § 271(a);

f. finding that Crestron has infringed one or more claims of the '573 patent under 35 U.S.C. § 271(a);

g. awarding ThinkLogix damages under 35 U.S.C. § 284, or otherwise permitted by law;

h. awarding ThinkLogix pre-judgment and post-judgment interest on the damages award and costs;

i. awarding the cost of this action (including all disbursements) and attorney fees pursuant to 35 U.S.C. § 285, or as otherwise permitted by the law; and

j. awarding such other costs and further relief that the Court determines to be just and equitable.

Dated: September 22, 2023

Respectfully submitted,
/s/ Zachary H. Ellis

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