



CPAC Case Study

Replacement of CWDM System with an IP System

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Embrionix Design



IP SHOWCASE THEATRE AT IBC2019 : 13-17 SEPT 2019



Agenda:

- 1) Benefits to CPAC
- 2) CPAC Company Overview
- 3) Key Points Regarding the Project
- 4) Description of Implemented System
- 5) Future Expansion and Implementation of Additional Capabilities
- 6) Summary



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Benefits to CPAC:

- 1) Increased Capacity
- 2) Integrated Routing (In-Band Control)
- 3) Operational Flexibility
- 4) Non-Blocking
- 5) Ease of Future Expansion
- 6) Fast Implementation – 3 Days of On-Site Commissioning/Training and Then Ready for Air
- 7) Comfortable First Step into Real-Time Media-Over-IP from SDI and CWDM



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Benefits to CPAC (Continued):

- 8) Compact – 1 RU at Each Site
- 9) Data Integration
- 10) Simplified Solution
- 11) Cost Effective



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CPAC Company Overview:

CPAC is a commercial-free, not-for-profit, bilingual (French and English) television service providing a window on Canadian politics and public affairs.



IP SHOWCASE THÉÂTRE A



CPAC Company Overview:

CPAC is owned by a consortium of Canadian cable companies, namely Rogers, Shaw, Videotron, Cogeco, Eastlink, and Access Communications, who have invested more than \$50 million to create and preserve this editorially independent voice.



IP SHOWCASE THÉÂTRE A





CPAC Company Overview:

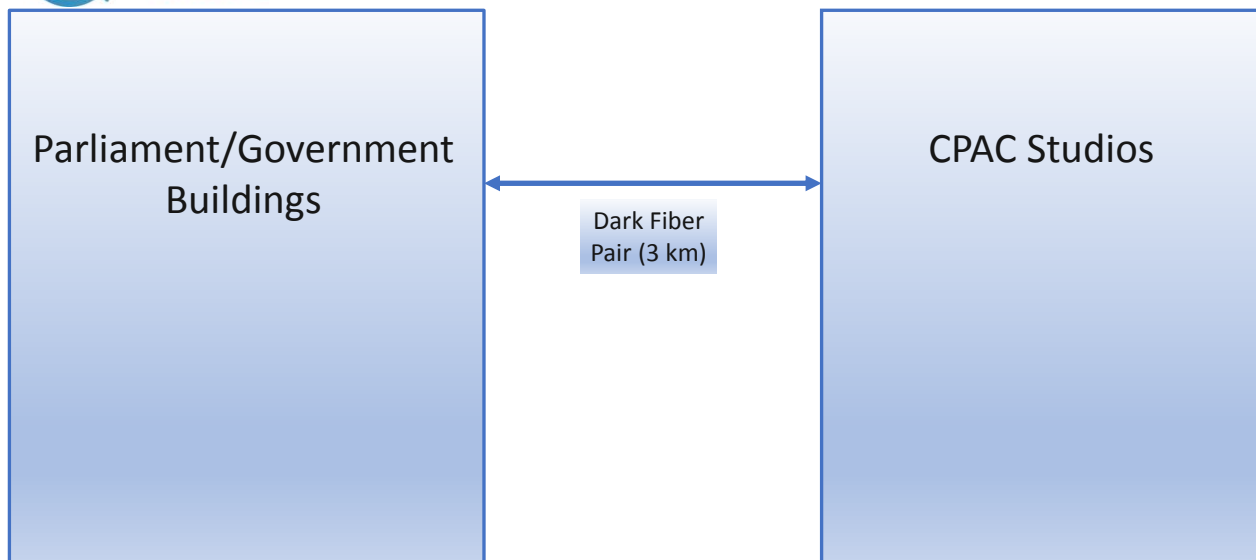
CPAC is available across Canada on basic cable and satellite, on the web at cpac.ca and on the CPAC TV 2 GO mobile app.



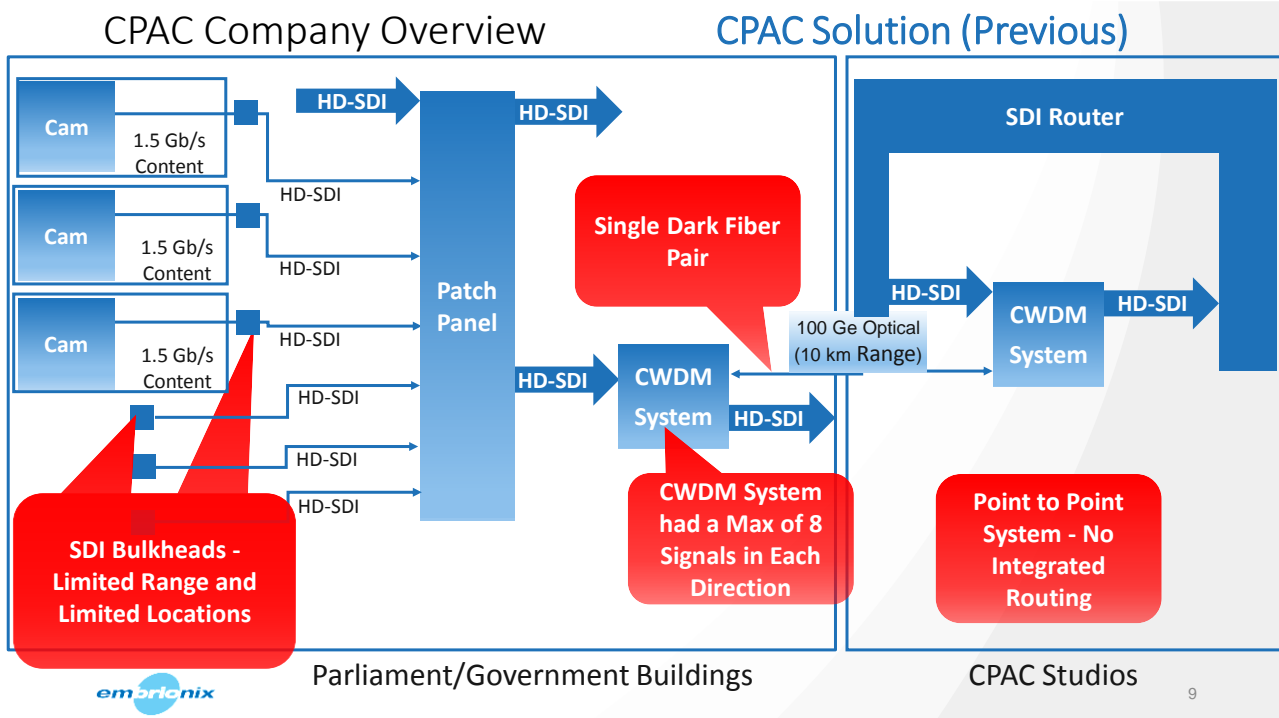
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CPAC Company Overview



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CPAC Company Overview:

CPAC is driven by a forward-thinking, knowledgeable, dedicated engineering leadership and team. Key vision and leadership is provided by Eitan Weisz (Director of Engineering, IT, and Technical Operations).



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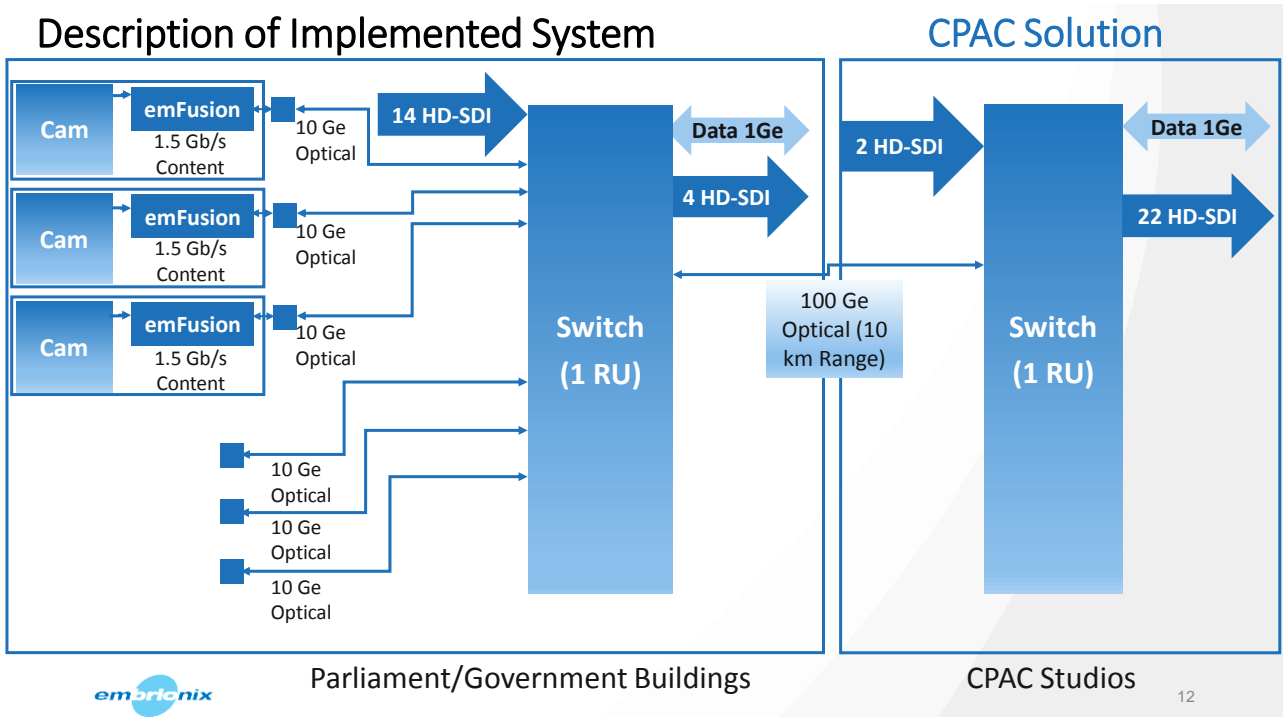


Key Points Regarding the Project

- Replacement of an Aging CWDM System
- Implementation of 2022-6 with a path to ST 2110. Significant Benefits of IP were Achievable Using 2022-6. (Integrated Routing, Non-Blocking Geographic Dispersion, Increased Capacity, Ease of Future Expansion, Reduced Cost, Ease of Integration)
- Cost Reduction and Simplification by Using 2022-6 Initially.
 - No PTP Required.
 - Use of Existing SDI Frame Syncs and Routing with Breakaway Capability
- Camera Location Flexibility Desired
- 1.5 Gb/s Content

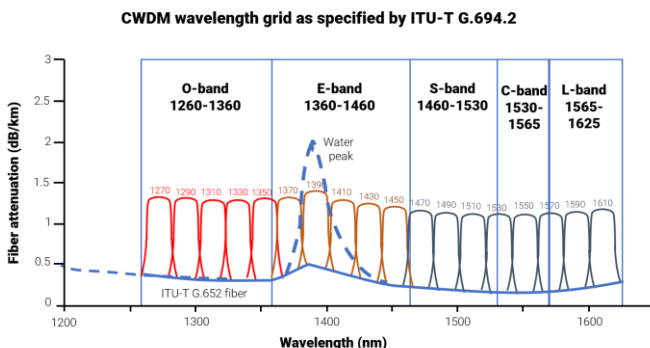


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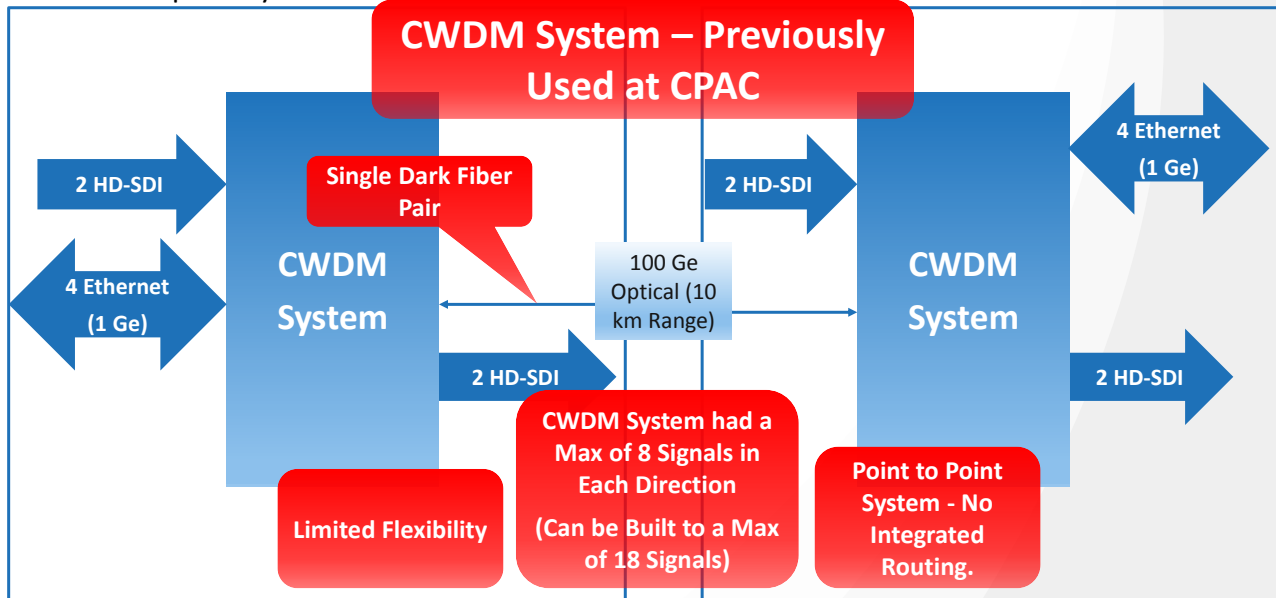


Capacity:
CWDM vs IP



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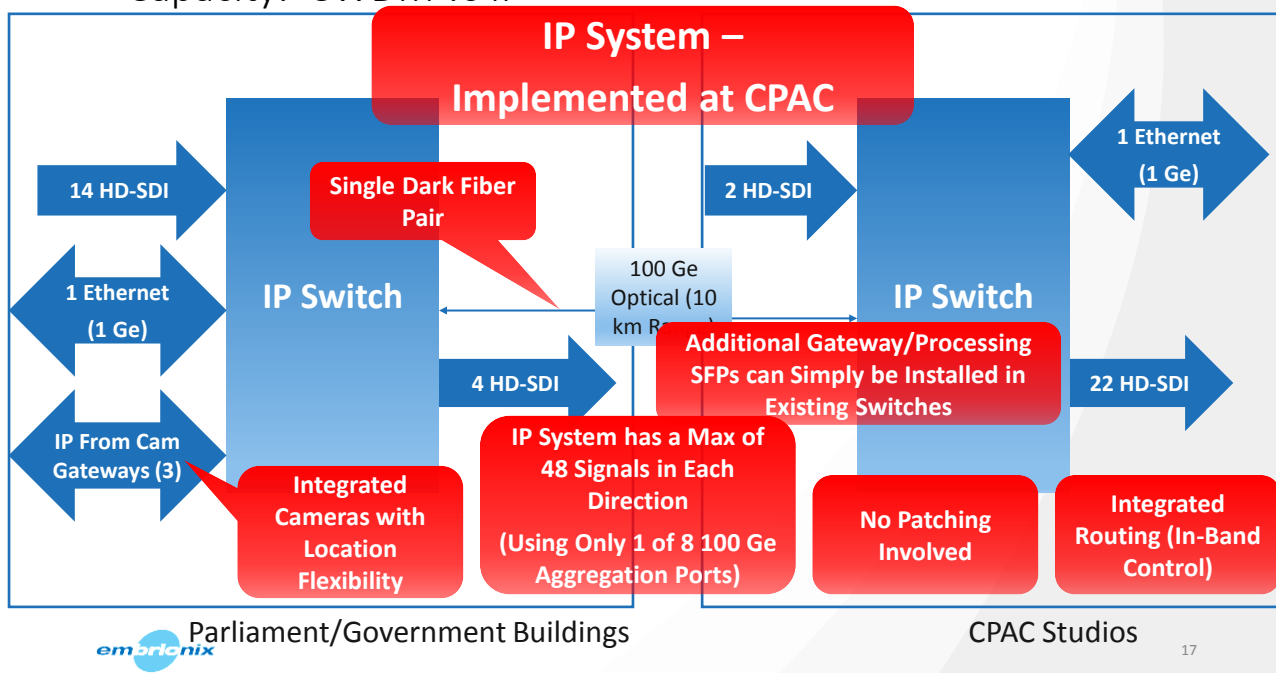
Capacity: CWDM vs IP



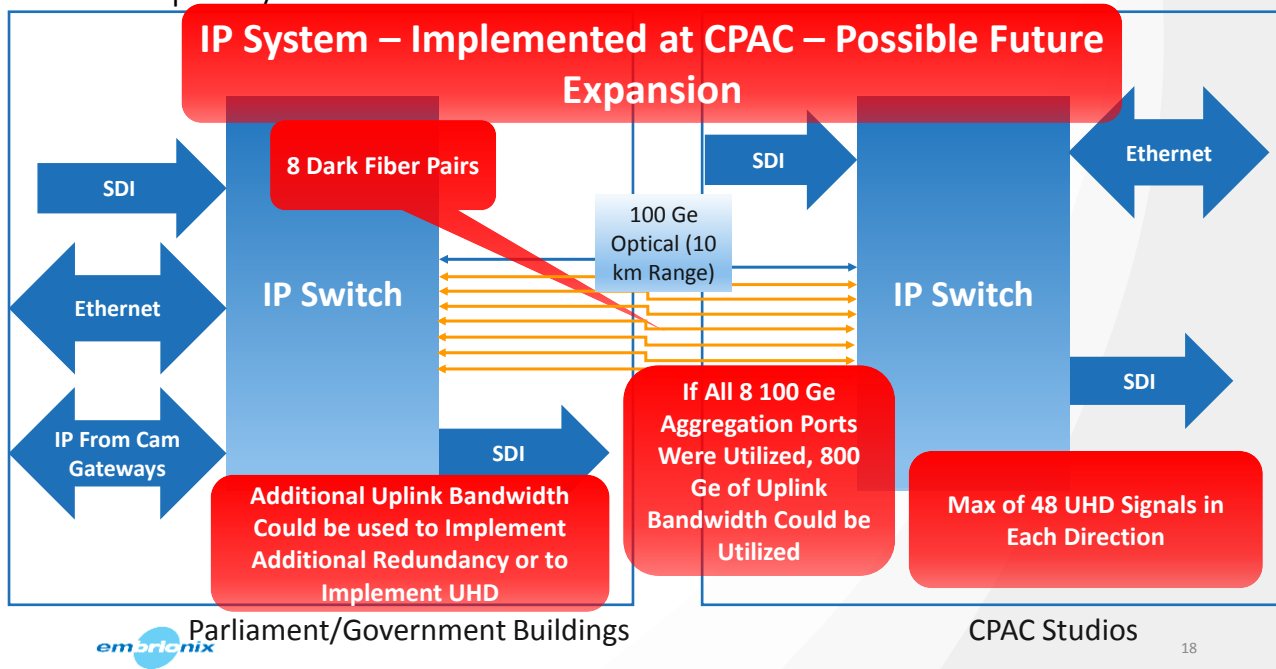
Parliament/Government Buildings

CPAC Studios

Capacity: CWDM vs IP



Capacity: CWDM vs IP





Possible Future Expansion and Implementation of Additional Capabilities

- Migration to ST 2110 (Firmware Upgrade, Addition of PTP Distribution)
- Increased Capacity
- Integration with Unified Control System (NMOS)
- Build Out of Spine/Leaf Architecture Replacement of Existing SDI Router



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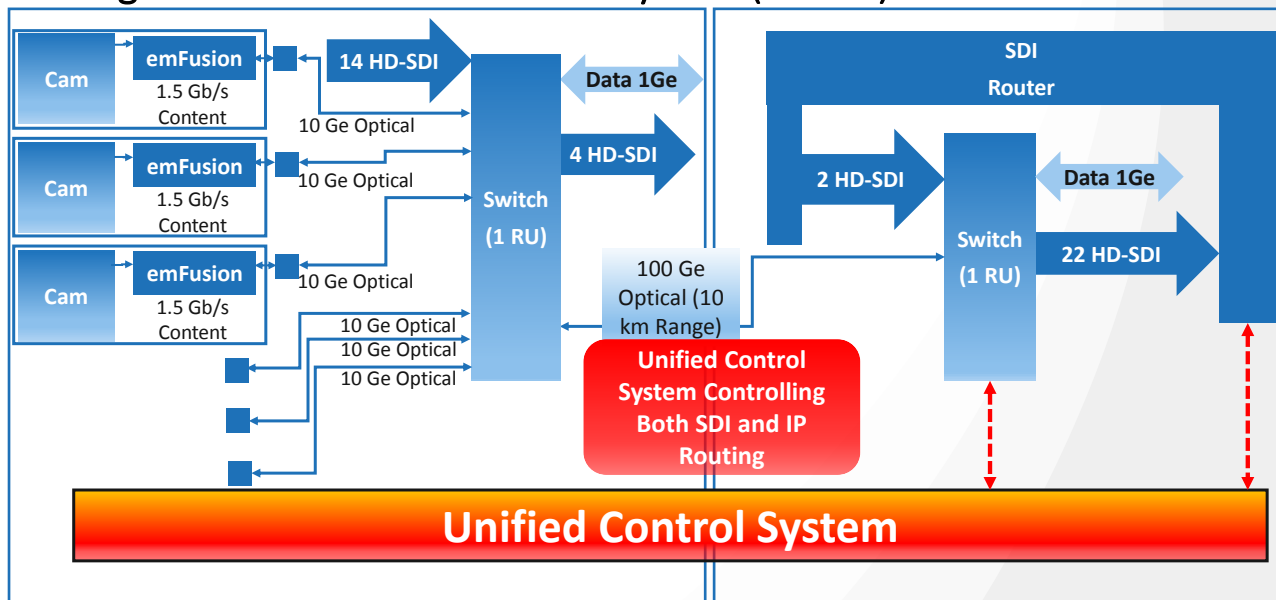
Possible Future Expansion and Implementation of Additional Capabilities

- Remote Camera Control – Data Integration
- Migration to UHD
- IP Processing Functions (Multiviewers, Up/Down/Cross-Conversion, Compression, Audio Grooming, Proc Amp, Frame Sync)
- In the Future, When There are IP Sources/Destinations Instead of SDI Sources/Destinations, New Firmware can be Loaded on SFPs for IP Processing Functions.



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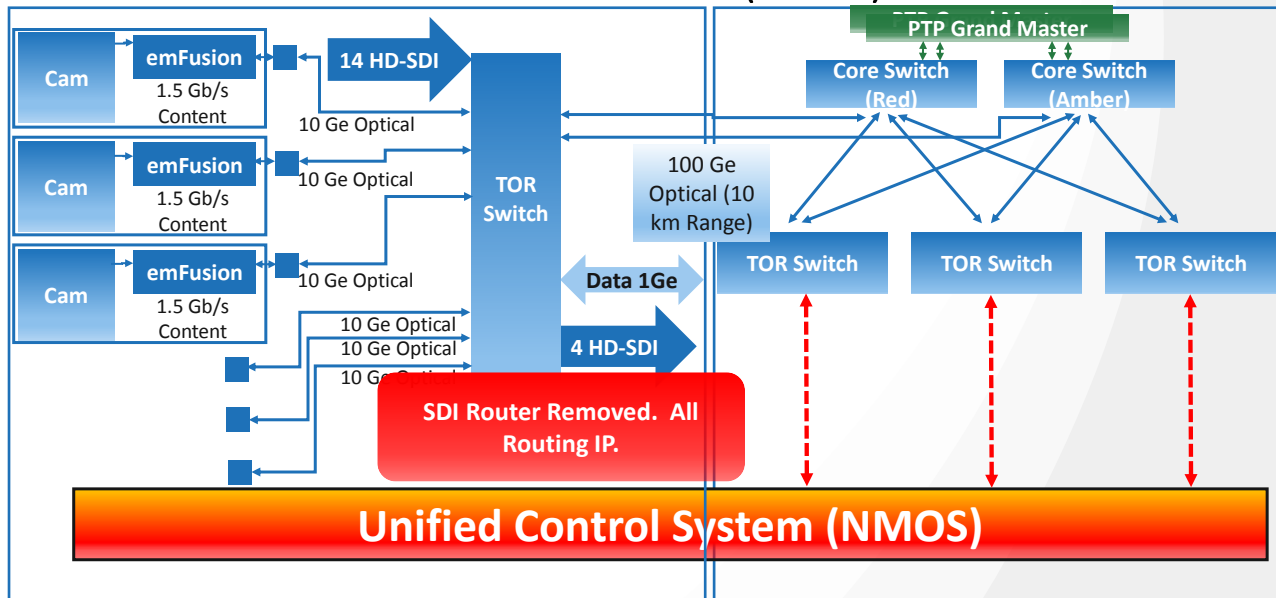
Integration With Unified Control System (Future) CPAC Solution



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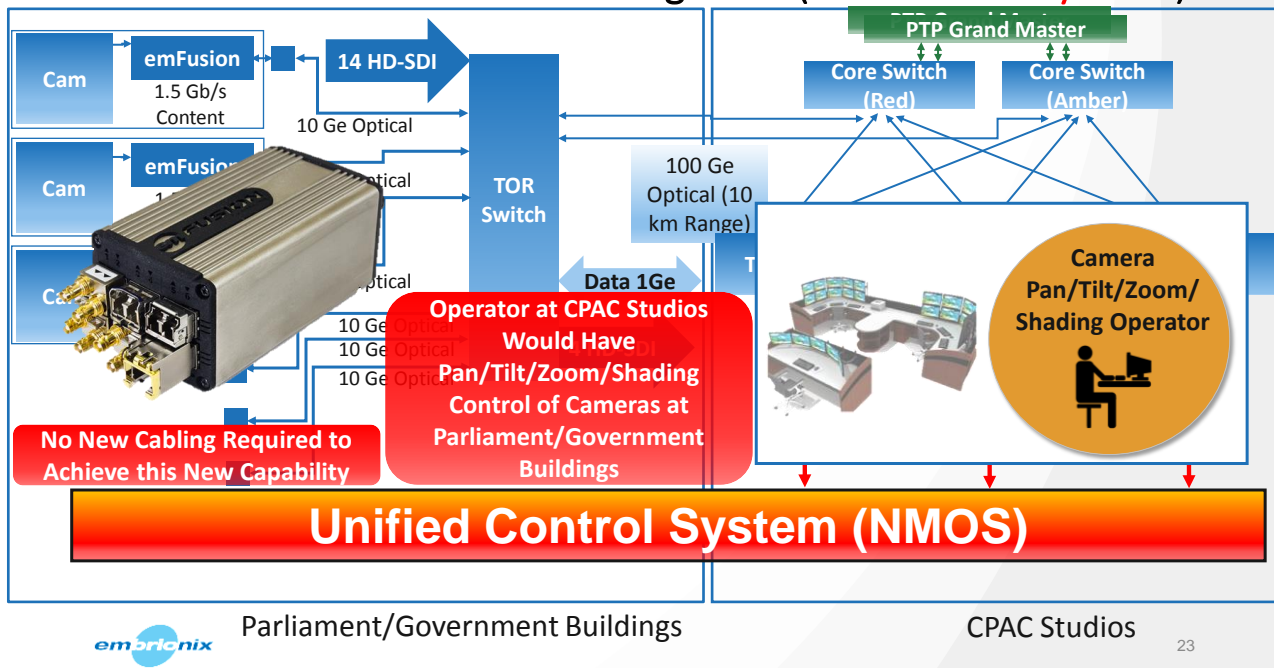
Build Out of Distributed IP Architecture (Future) CPAC Solution



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Remote Camera Control – Data Integration (Not Planned by CPAC)



Summary

- 1) The Benefits of IP Compared with CWDM are Numerous and Significant. (Integrated Routing, Increased Capacity, Operational Flexibility, Non-Blocking, Ease of Future Expansion, Fast Implementation, Compact, Data Integration, Cost Effective)
- 2) ST 2022-6 is a Viable Comfortable First Step into Real-Time Media-Over-IP. Many of the Benefits of IP can be Realized with ST 2022-6.
 - PTP not Required
 - Path to ST 2110 can be Designed in





Summary

- 3) Standard Design Practice for SDI Facilities was to Create a Large Centralized Router. When Additional Locations or Capacity Expansion was Required, Tie Line Management was Deployed using CWDM or SDI Trunks. The Blocking Limitations Around these Techniques has Caused Substantial Frustration. IP can be used to Build Geographically Dispersed Systems while Maintaining Non-Blocking Functionality.
- 4) There is a Substantial Install Base of CWDM Systems Throughout Our Industry. These Could Migrate to IP to the Benefit of Users.



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Thank You

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Thank you to our Media Partners



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