

**Snell  
Advanced  
Media**

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# Agenda:

- SAM overview
- Market Trends & Buzz
- Virtualização e Cloud
- Migração para IP
- Projetos Olimpicos

# A bit of history - UK broadcast companies

## Quantel

**1973** -Quantel was founded in 1973 to designed and manufactured digital production equipment for the broadcast

**1977** - Pro-Bel was founded in 1977 by a team of engineers from the BBC and EMI in response to an industry demand for quality router products



**2014** – Quantel and Snell merged and began the consolidation of the two companies.



**1973** - Snell & Wilcox was founded by Roderick Snell



**2009** - Snell & Wilcox merged with Pro-Bel. The resulting company took the name Snell.



**2015** – A new name with full consolidation of products , strategy and roadmap.

# Our Market Place

Technologies for evolving media production ecosystems



Content Creation

Management & Workflow

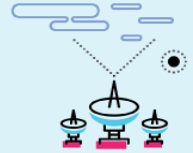
Live  
Production

Production  
Editing  
&  
Finishing

Playout  
&  
Delivery

Infrastructure & Image Processing

Media Distribution



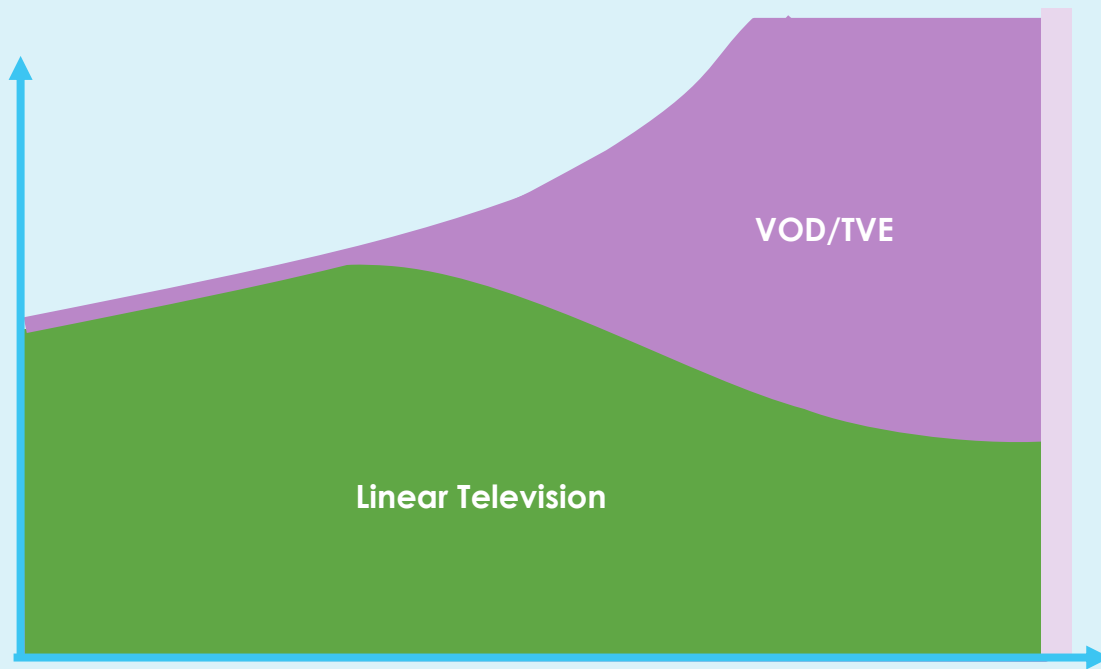


# Market Trends & Buzz

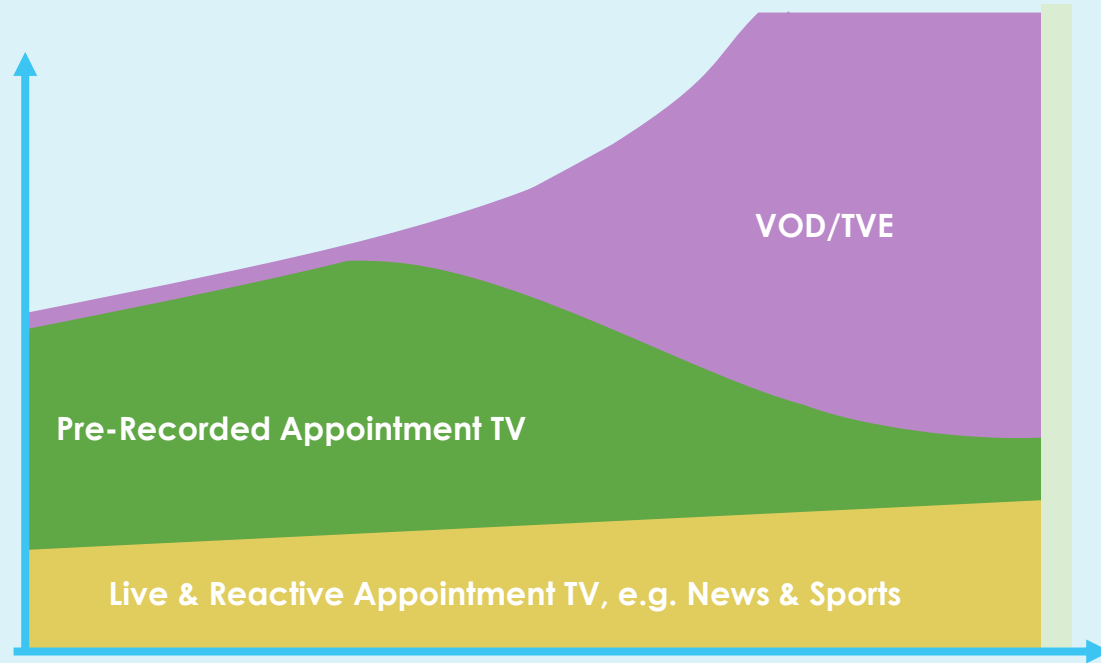
**Consumer consumption of television has steadily grown for decades**



**More recently there has been explosive growth of on-demand media - overall consumption has increased, but also cannibalizes TV viewing**

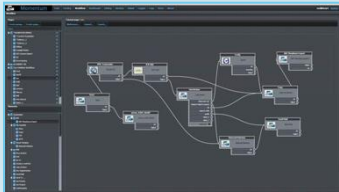


**‘Appointment TV’ is being sustained by an underlying growth of live content viewing. Overall more media consumption equals more opportunity**





# Threat or Opportunity? Areas of Investment...



**Workflow Orchestration**



**Advanced Media Management  
& Content Publishing**



**High Precision Imagery**



**IP Streaming**



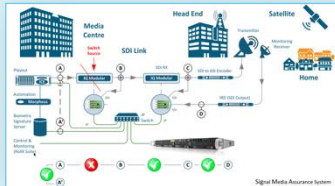
**Data Center Deployment**



**Software on COTS Hardware**



**Open Standards & APIs**



**Intelligent Monitoring**



**Flexible Licensing**

# Virtualization & The Cloud?

# Data Centers



A data center consists of rows of 19" racks, not unlike a broadcaster's SDI based technical facilities, but are used purely for generic IT functions.

Broadcast is the last major business activity of a broadcaster to migrate into a data center – due to the obstacle of the broadcast specific data transport, which we know as SDI.

Technology has reached now the point where SDI can be replaced by IP, which allows the processing to be consolidated into the data center with other operations for reduced costs and improved management of systems.

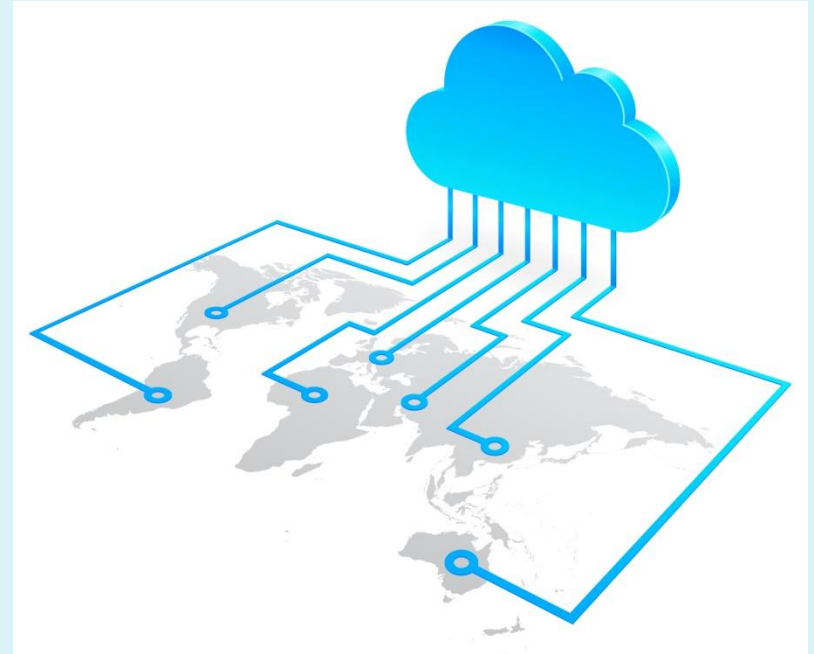
# Blade Servers



It is common to find data centers full of blade servers  
Each blade is a server housed in a large enclosure  
The blades have memory but share common storage, and a common network fabric  
A customer's IT dept will select from a wide range of options based on the required performance

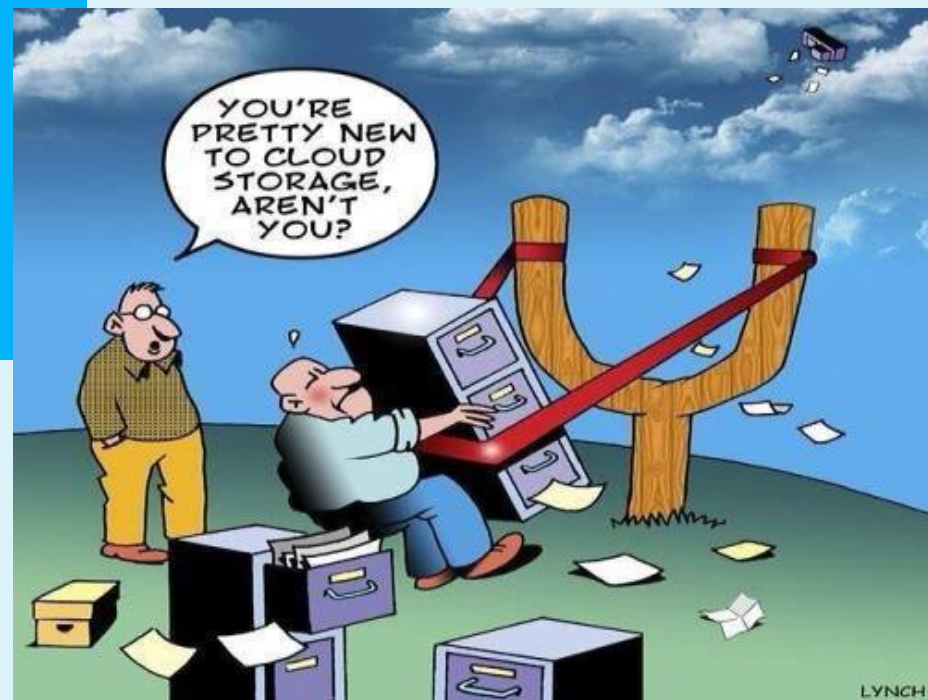
Virtualisation is common in data centers. It allows the specific server instance to be independent of the underlying hardware. If hardware fails, the virtual server can be automatically or manually migrated to other hardware. The management software used with VMs is key to providing improved efficiencies.

# & The Cloud...

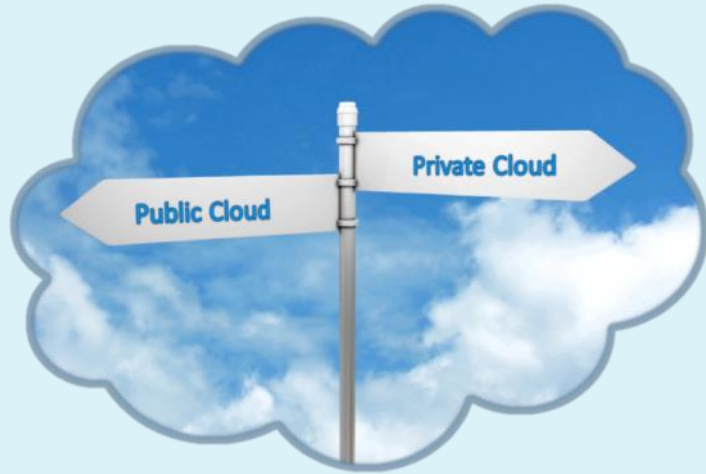




**There is no cloud**  
it's just someone else's computer



# Public Cloud Vs. Private Cloud



## Private Cloud - Datacenter

Deployments require in-house IT infrastructure & associated support services

Typically capital infrastructure but generic nature use for different services over its life

## Public Cloud

True OPEX model, providing elastic compute & storage

Key factors in considering cloud are connectivity, data transfer costs & security

Lets recap where a Master playout infrastructure was 5 years ago





# CiaB – Channel in a Box

Snell Advanced Media launched a CiaB 5 years ago and named it  
ICE



# Why Channel in a Box?

All this... in one box



**Dramatically reduce  
total cost of  
ownership**

## Reduced CAPEX



### Less Complexity

- Fewer devices
- Lower installation costs
- Less wiring
- Fewer points of failure

### Fewer vendors

- Fewer integration headaches
- Reduced service costs



### Reduced running costs

- Power
- Cooling
- Space
- Maintenance
- Simpler upgrade
- Reduced carbon footprint

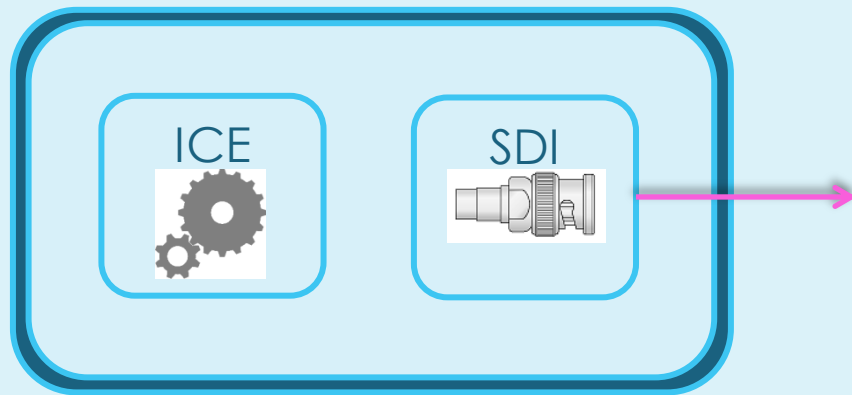
Lets look inside ICE



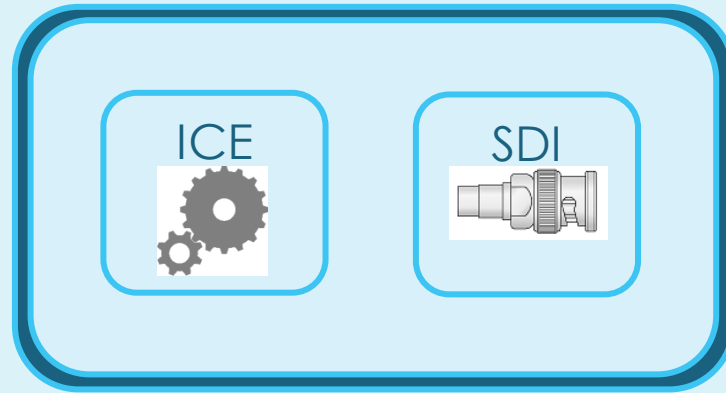
We have our  
ICE playout software



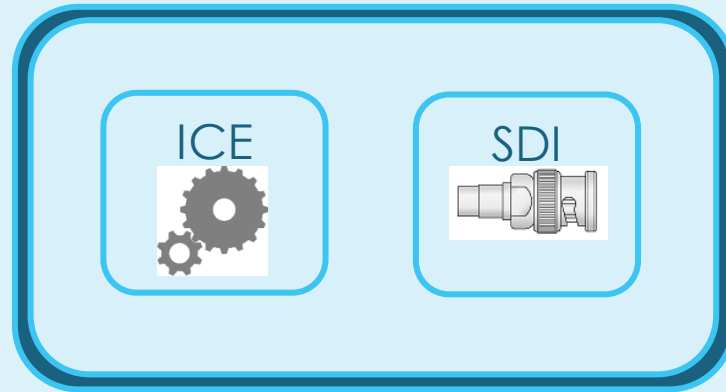
...and a hardware  
card for SDI



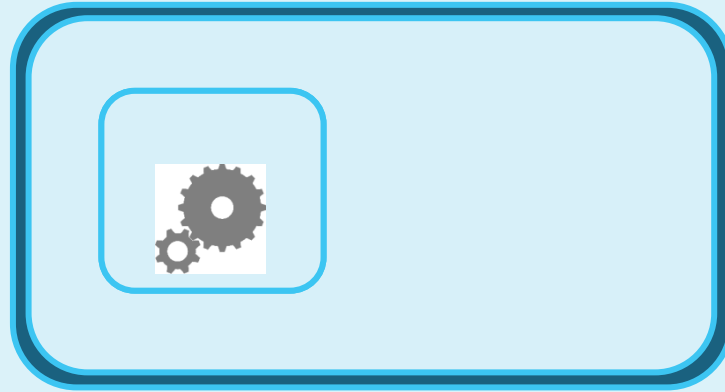
Now, lets strip this back to the essence of what we need to create a video stream...



If we don't need the SDI...



...and we don't need the box!







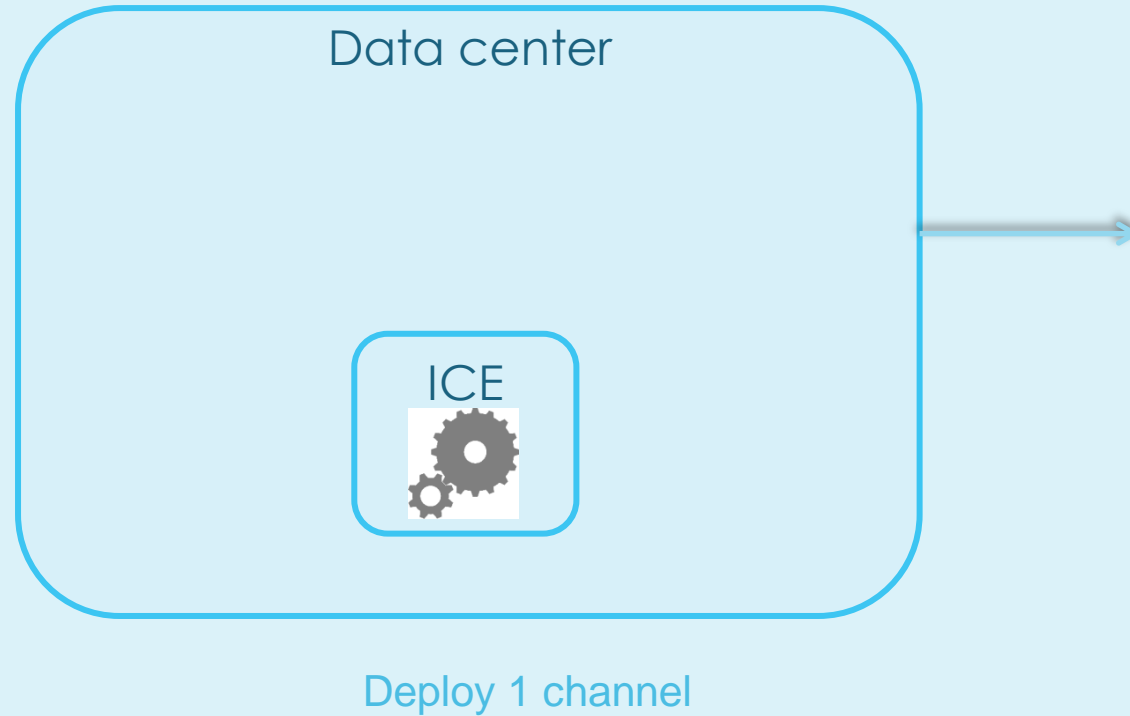
ICE SDC is software only and can run in a virtualized COTS hardware environment

Instead of a dedicated server with proprietary I/O, broadcasters can now use scalable Data centers that run virtual machines on Blade servers.

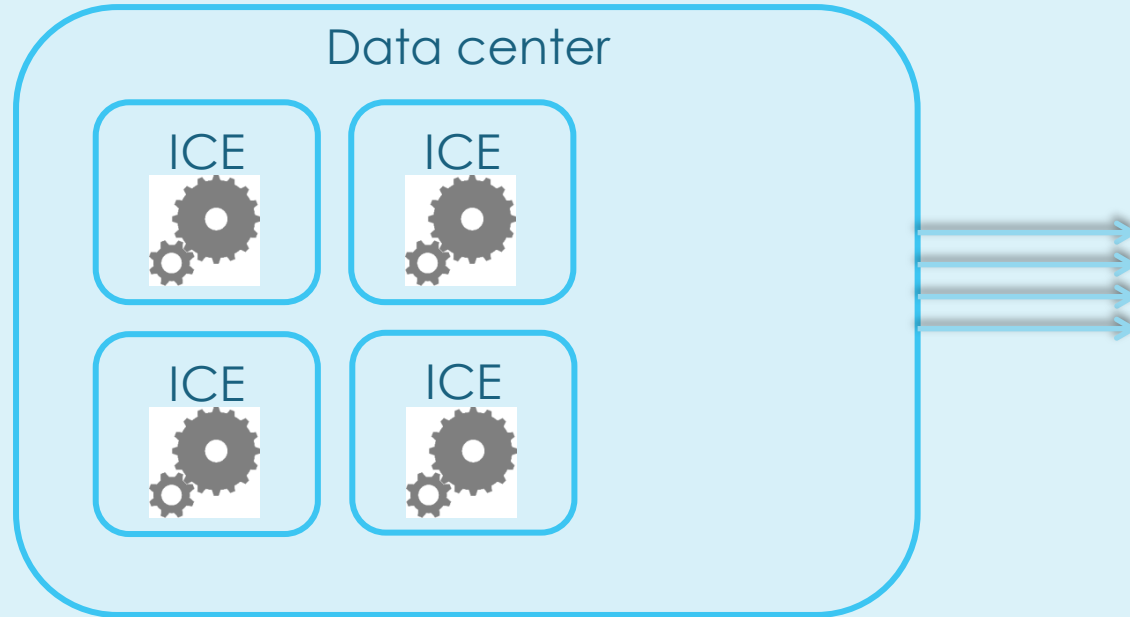
This allows dynamic allocation of resources as business needs change...



# ICE SDC – Agile Deployment

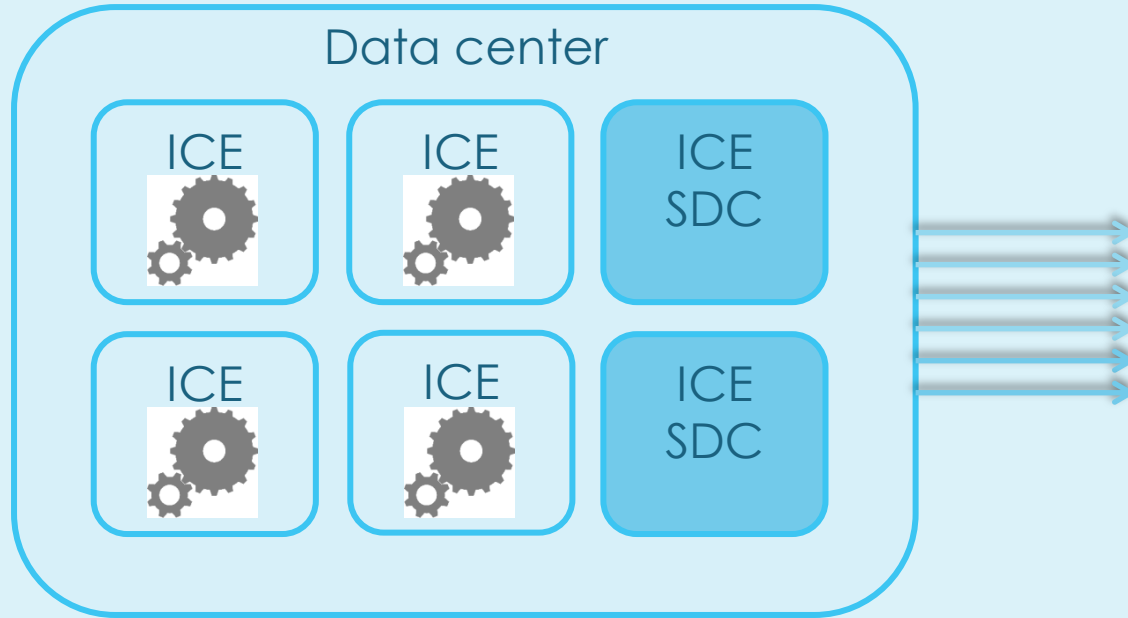


# ICE SDC – Agile Deployment



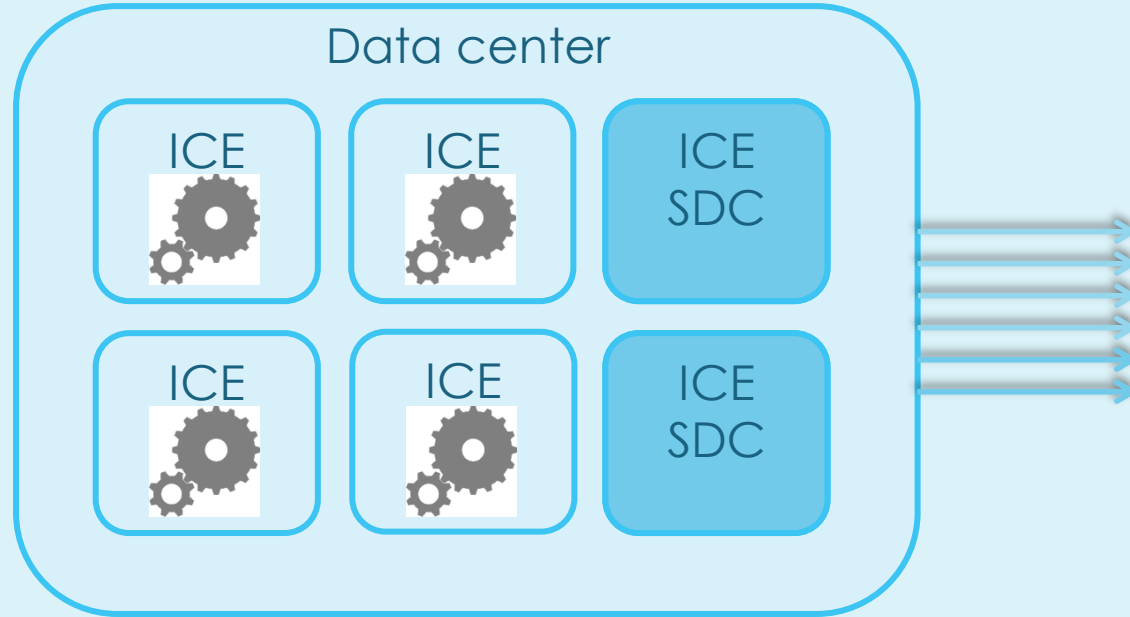
Deploy several channels

# ICE SDC – Agile Deployment



Provide channels on stand-by for deployment at short notice

# ICE SDC – Agile Deployment



‘Pop-Up’ monthly channel licences for short term playout

# ICE SDC Features

- Deployment:
- We are partnering with **Cisco** on deployment of ICE SDC on their UCS platform. We will remain open to working with any other platform our customers may prefer.
- We have been successfully running ICE SDC on both generic **Dell blade** servers and discrete **Supermicro** 1u servers – proving that the software can be deployed on any suitable generic compute platform.
- Our current Proof of Concept systems are demonstrating the use of **Ansible automated IT deployment**.

# SDI to IP Migration





**4K...and beyond**





HDTV



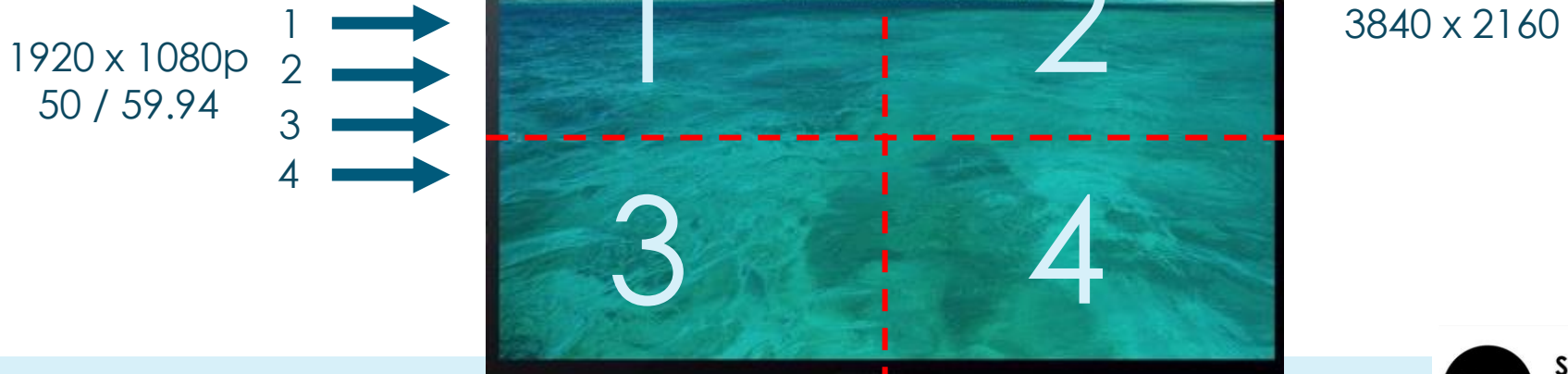


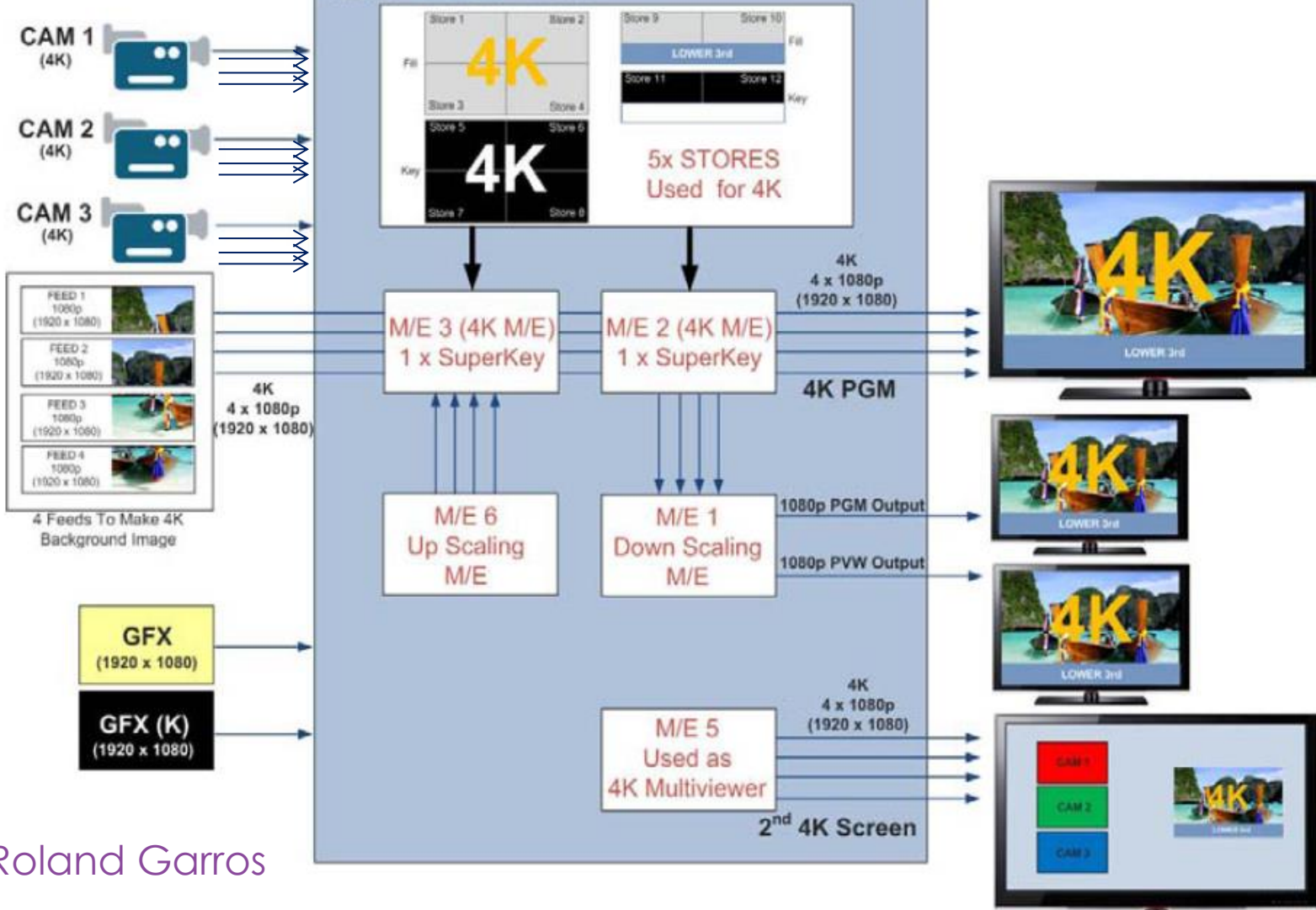


# Ultra HD – Quad Link

4K UHD TV is today's approach using a quad link approach so each 4K source is made up of 4 x 1080p Sources

4K UHD TV is also based on today's formats and today's frame rates

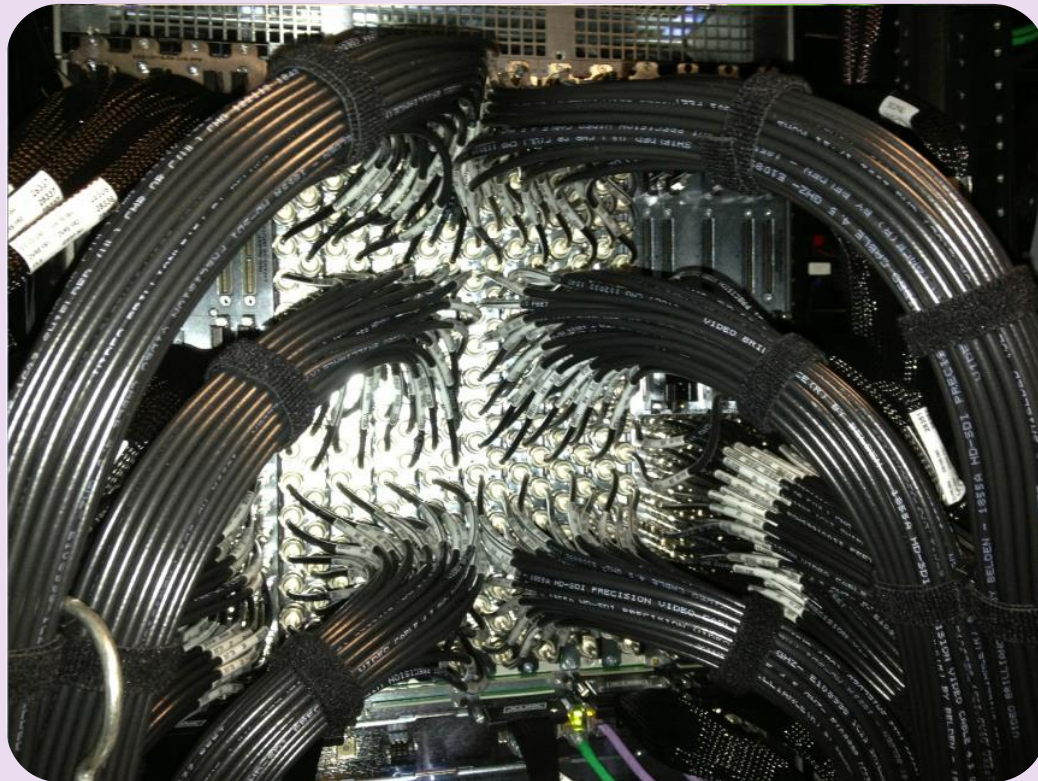




Roland Garros

# Quad Link 4K Signals

[Return  
To  
Menu](#)



# Growth In Form Factor Requirements

- **SDI**

- 3gb/s
  - Quad-Link (Square-Division)
  - Quad-Link (Two Sample Interleave)
- 12gb/s

- **IP**

- 10gb/s
- 25gb/s
- 40gb/s



# AIMS Growing Membership

- Founder members

- Grass Valley
- Imagine Communications
- LAWO
- Nevion
- **Snell Advanced Media**

- Membership

- 15<sup>th</sup> April 2016
- 20 full members
- 10 associate members

- 21<sup>st</sup> Century Fox
- 5280 Broadcast
- AJA Video Systems
- Arista
- Avid
- CBS
- Cisco
- Cobalt
- Dejero
- Embrionix
- Evertz
- EVS
- Grass Valley
- Harmonic
- Ikegami



- Imagine
- Intopix
- Lawo
- Matrox
- NEC
- Netinsight
- Nevion
- Panasonic
- Snell Advanced Media
- SONY
- Tektronix
- The Telos Alliance
- TVU Networks
- Utah Scientific
- VIZRT

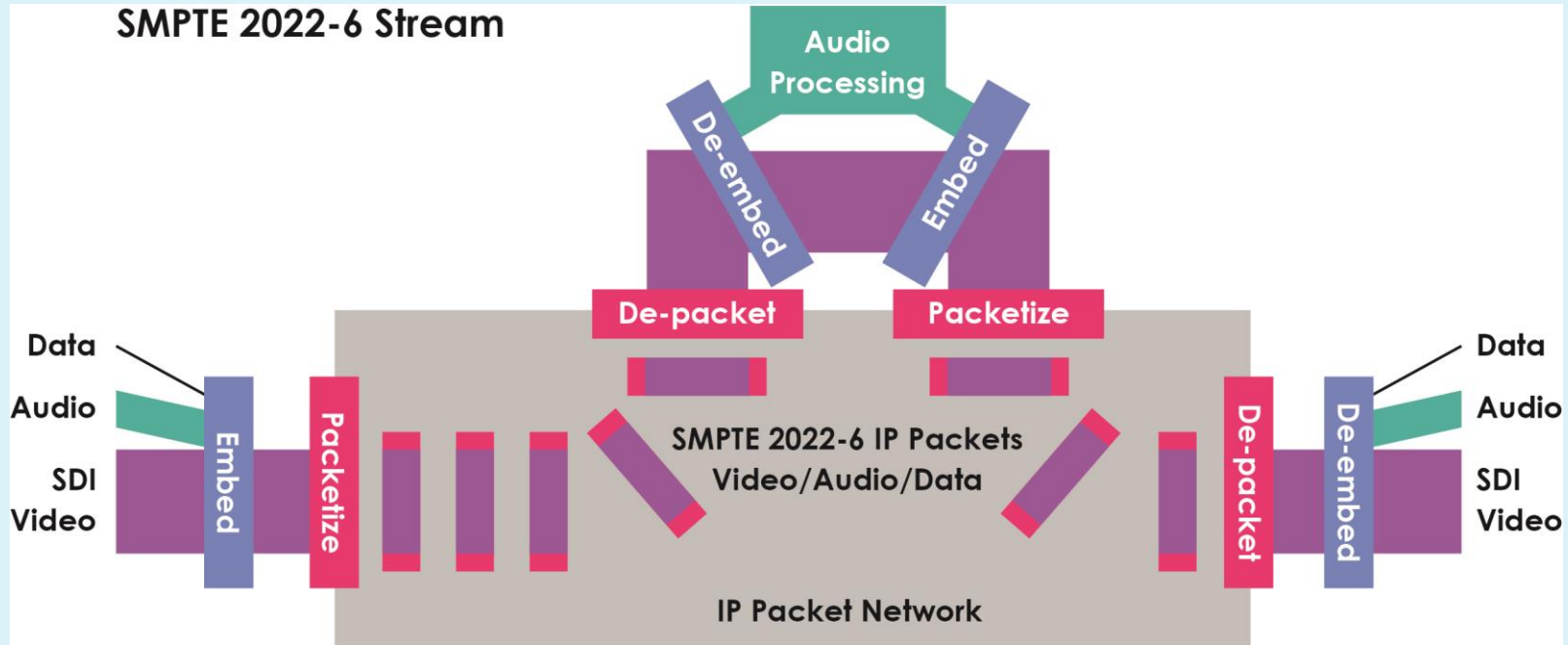


# Standards Making IP Happen

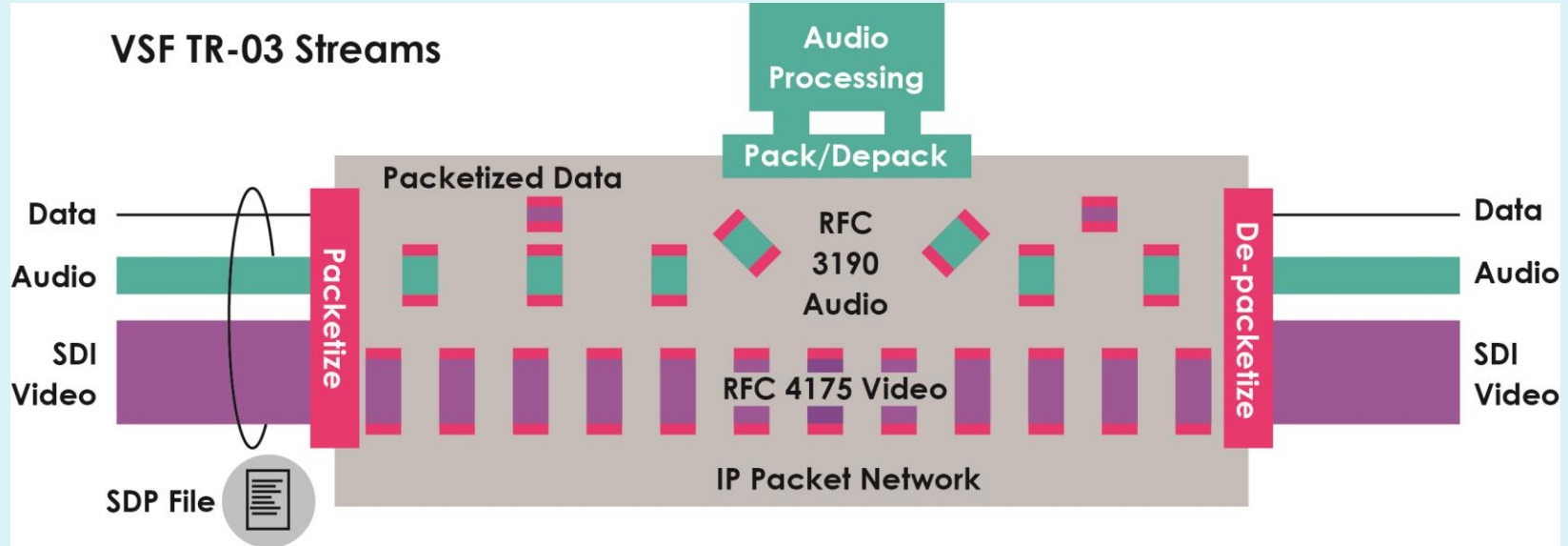
- SMPTE 2022 suite
  - 2022-6 – Transport of uncompressed high bit rate video signals over IP that are first formatted as SDI (Serial Digital Interface) signals
  - 2022-7 - As 2022-6 but with the addition of provision for seamless protection switching
  - A short term solution to ensure vendor interoperability
- Individual RTP essence handling
  - VSF TR-03 featuring a suite of essence packetising for
    - Video (IETF RFC 4175)
    - Audio (IETF RFC 3190)
    - Metadata (IETF RFC draft-ietf-payload-rtp-ancillary-02)



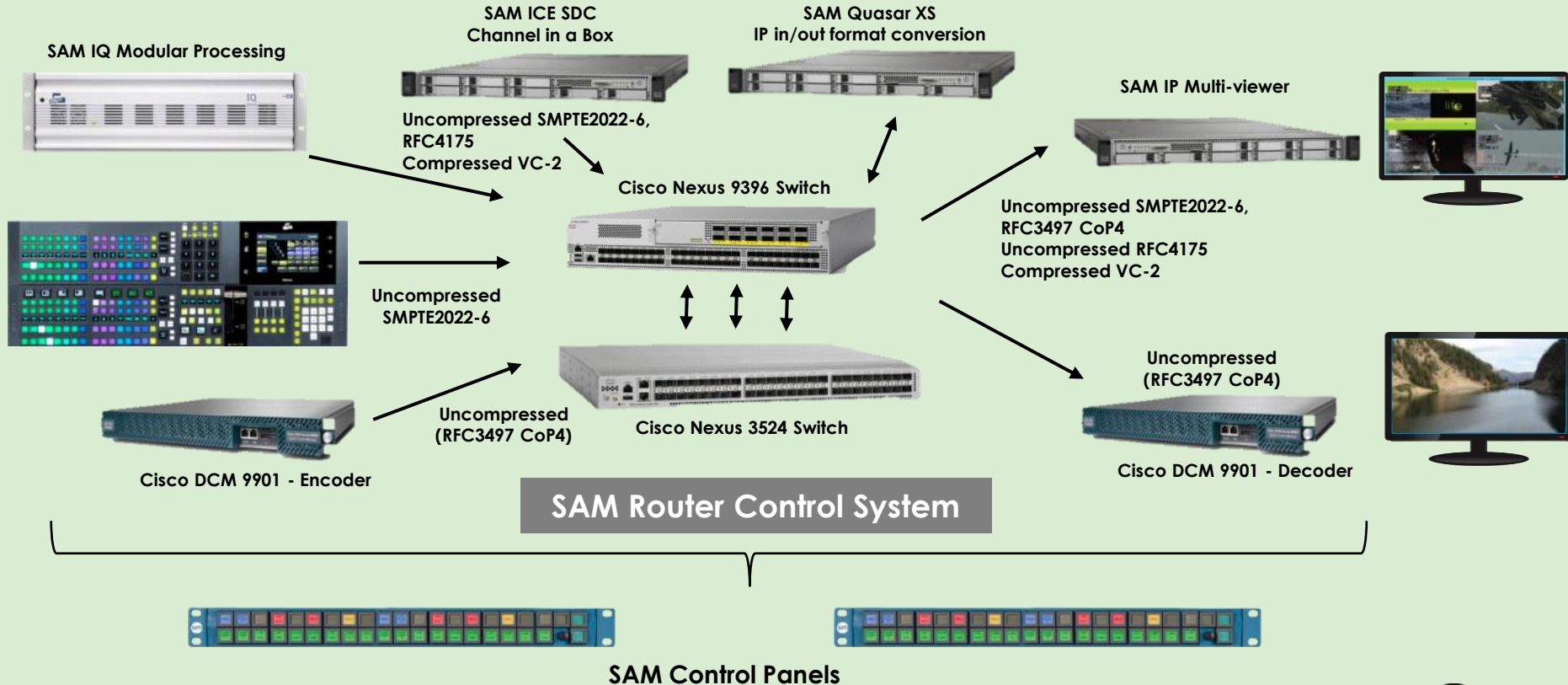
# SMPTE 222-6 – SDI Encapsulated Into IP



# TR-03 Suite Of Essence Streams



# SAM's Been Doing Interoperability 2+ Years!



# Example of Olympic projects deployments

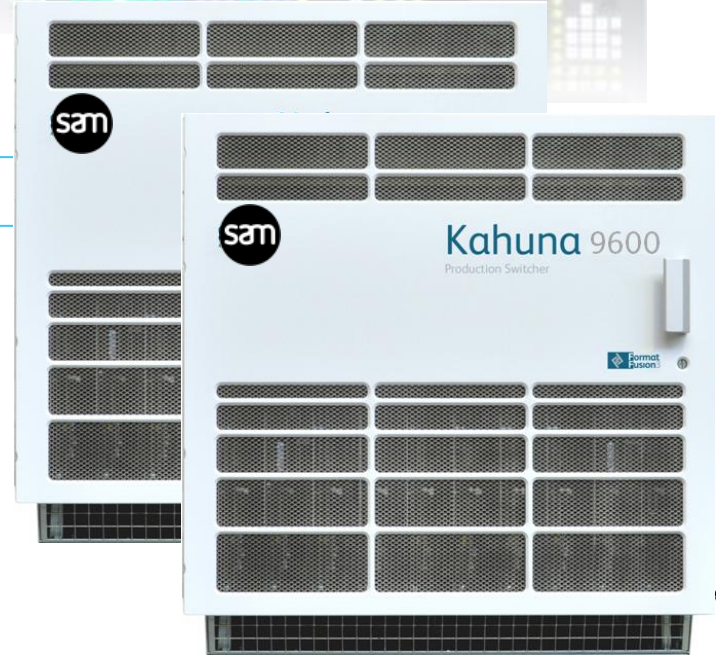


# Olympics 2016 - Globosat



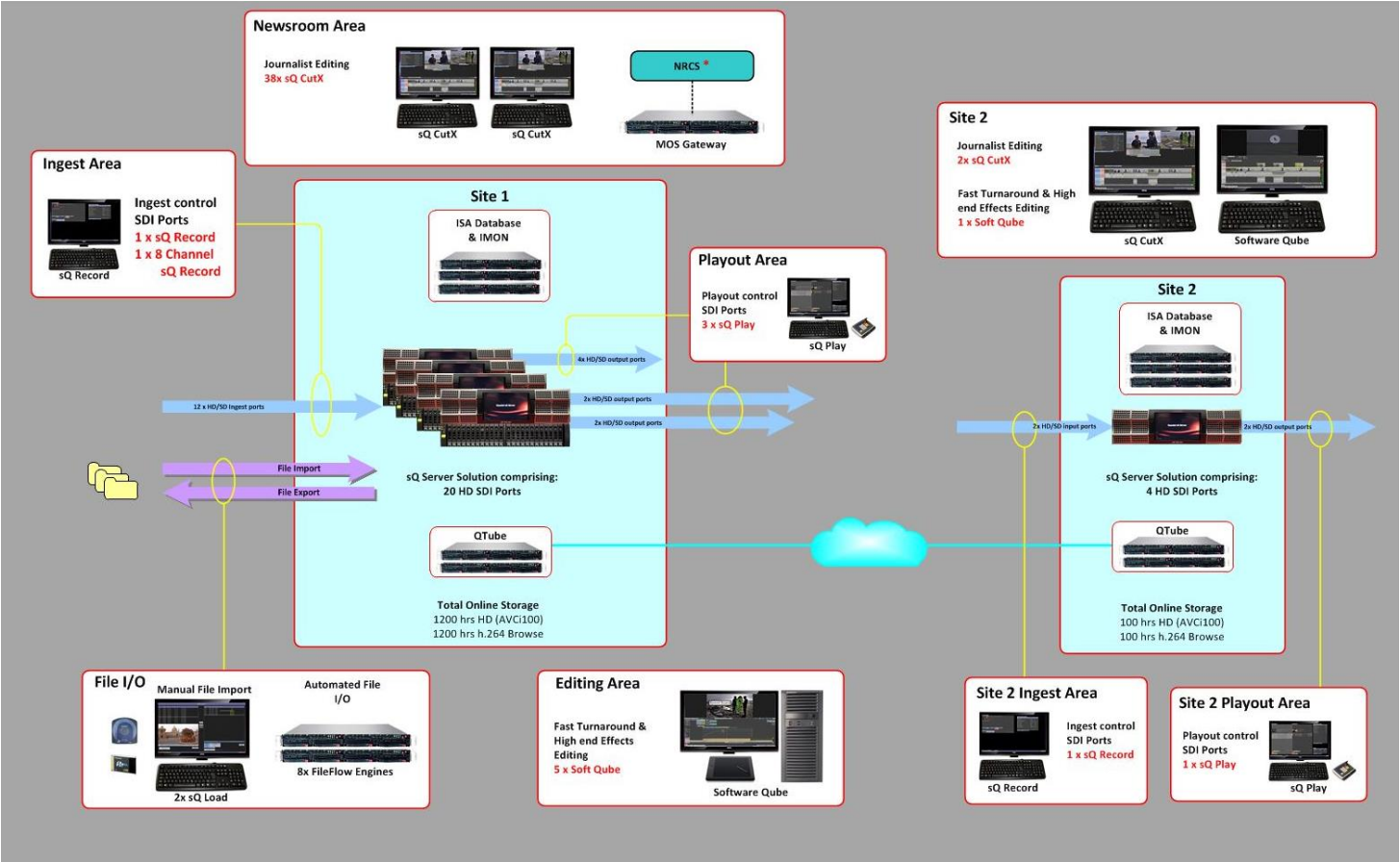
IP 10G ports

IP 10G ports

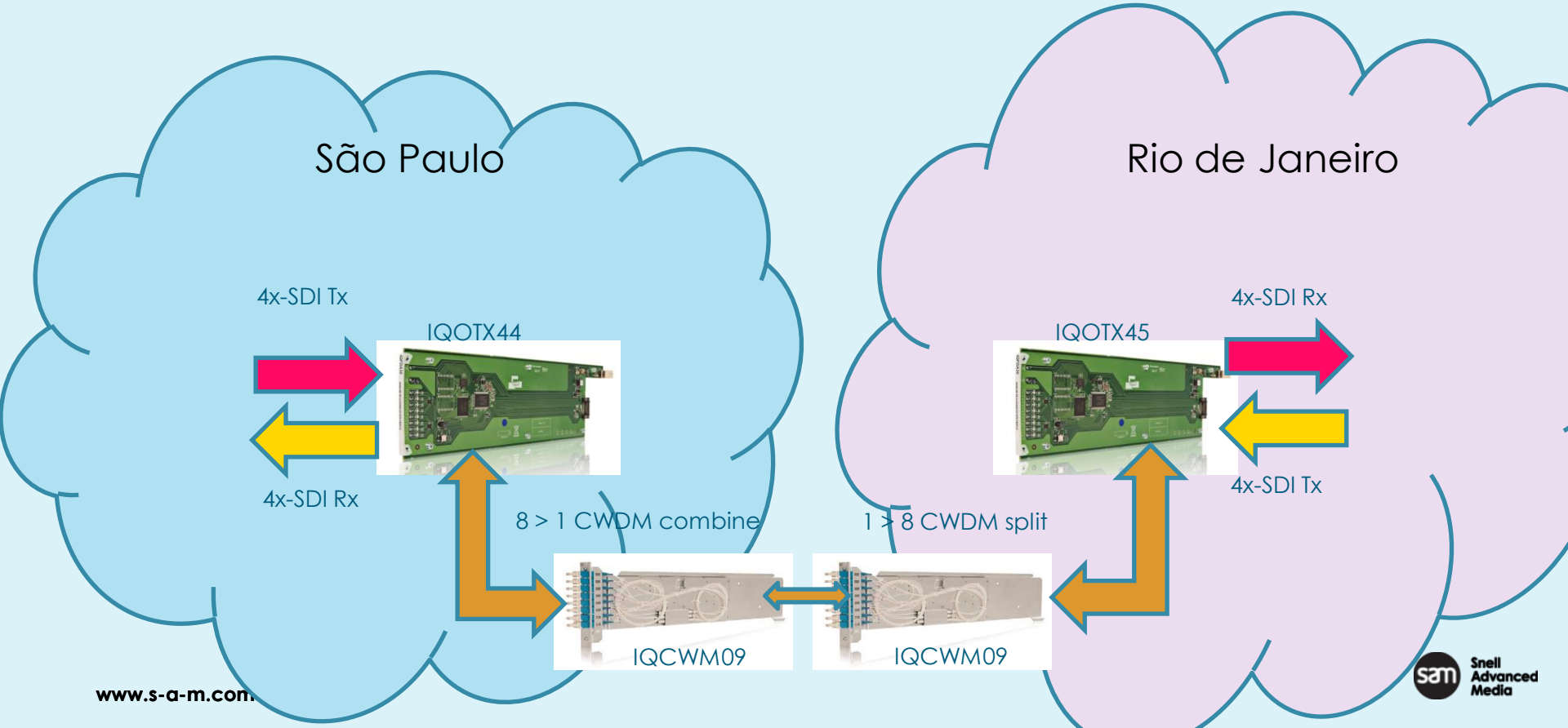




# Olympics 2016 - ESPN

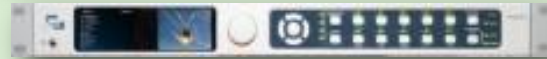
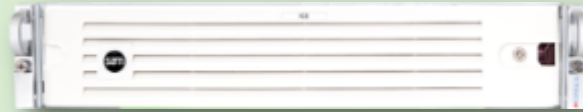
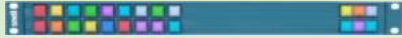
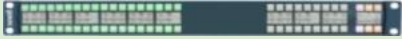


# Olympics 2016 – TV Bandeirantes

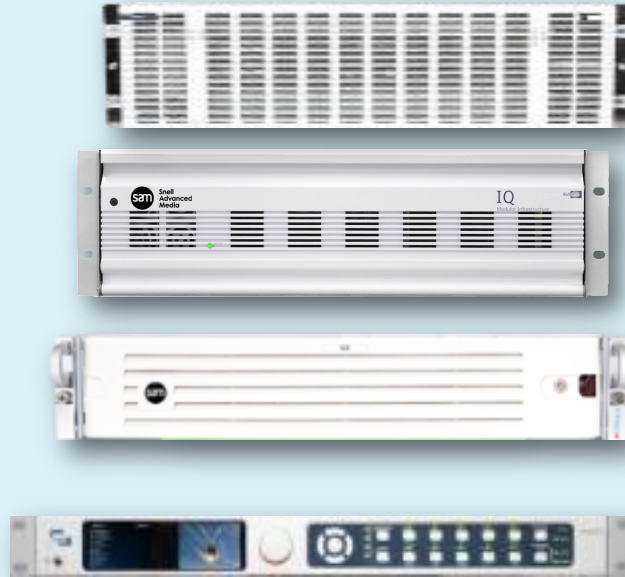




# Olympics 2016 – FOX Sports



# Olympics 2016 - OBS



# www.s-a-m.com/technology

IP - Snell Advanced Media x +

https://s-a-m.com/technology/ip/ Pesquisar

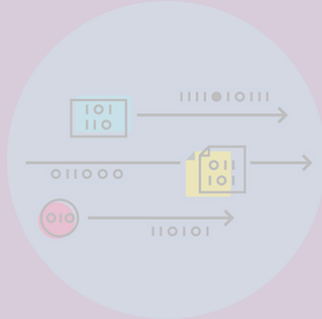
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## Technology

- IP
- 4K / 8K
- HDR / HFR
- Software Defined Systems
- Cloud / Datacenter
- Media Biometrics



# Obrigado



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