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Building a Private Cloud for Live Production

Gordon Castle
SVP, Technology and Operations

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Eurosport Strategic Challenges and Opportunities

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Today

- Ageing infrastructure
- Limited ability to enable change
- Limited flexibility and difficult to scale
- Technology not able to support new growth
- Escalating operating cost

Future with ETT

- New infrastructure and technology approach enables location and business flexibility
- Common content platform for linear and digital
- Lowers technology cost of new services
- Enables faster time to market for new services and consumer testing

Cost savings, location flexibility and a true Digital/Linear Production environment

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Key Technology Challenges

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- Transition to 2110 and AES67 audio
- Leverage public cloud and cloud stack where possible
- Centralized playout
- Central MAM and Content Storage
- Remote production

- Event-based production
- Resource management
- Live data graphics
- Ability to provide customized feeds for all digital platforms and linear services

IP & Cloud   Remote Production   Content Hub   Flexibility   Scale

Cost Reduction
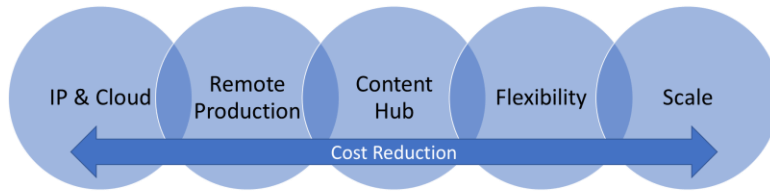
Key Project Challenge – Time

ETT Enables Business Improvement

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An investment that creates unified digital and linear production ecosystem and common content hub to enable the growth of our digital and linear businesses
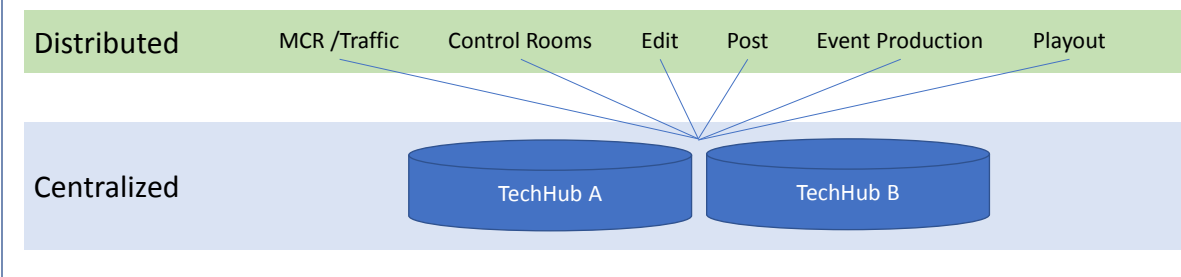
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Evolution of live production

- Remote production = low cost and agile live production

2

Digital and linear growth

- Cloud based approach allows for rapid scaling.
- Common content hub for digital & linear

3

Efficiency and the bottom line

- Ability to efficiently use technology based on event production instead of channel production
- Ability to drive cost of production and changes down

Dynamic, scalable and efficient content production platform

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ETT Scope

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1 Evolution of live production

2 Digital and linear growth

3 Efficiency and the bottom line

Two TechHubs supporting all live production needs for all market and products

Distributed — MCR /Traffic   Control Rooms   Edit   Post   Event Production   Playout

Centralized — TechHub A   TechHub B

Common Access to all Content for Digital and Linear Platforms

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Key Technology Principles

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- Cloud approach for physical kit
  - Flexibility, scalability, redundancy, efficiency, evolution
- Common access to all content with distributed operations
  - Unrestricted support for digital growth
- IP provides the scale and flexibility needed
  - Over 40,000 video flows
  - Up to 32 discreet audio pairs per video
  - Dynamic system deployment and orchestration
- Remote production for all – from simple to complex

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Challenges

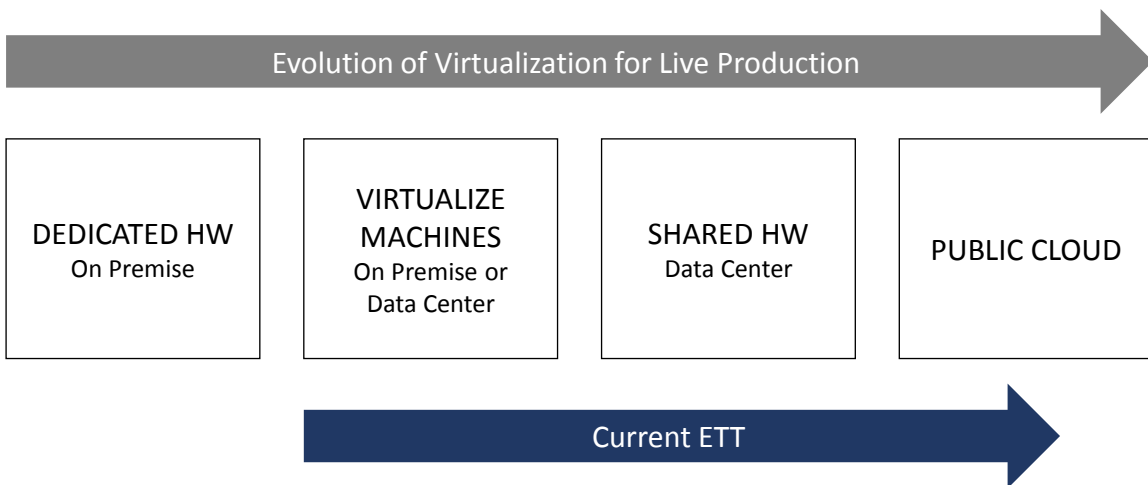EUROSPORT
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- Huge amount of change and an aggressive project plan
- Vendor support for 2110 still evolving
- Industry has focused on IP and not IT
- No best practices for system and configuration management
- Breaking new ground with cloud deployment approach for traditional production kit
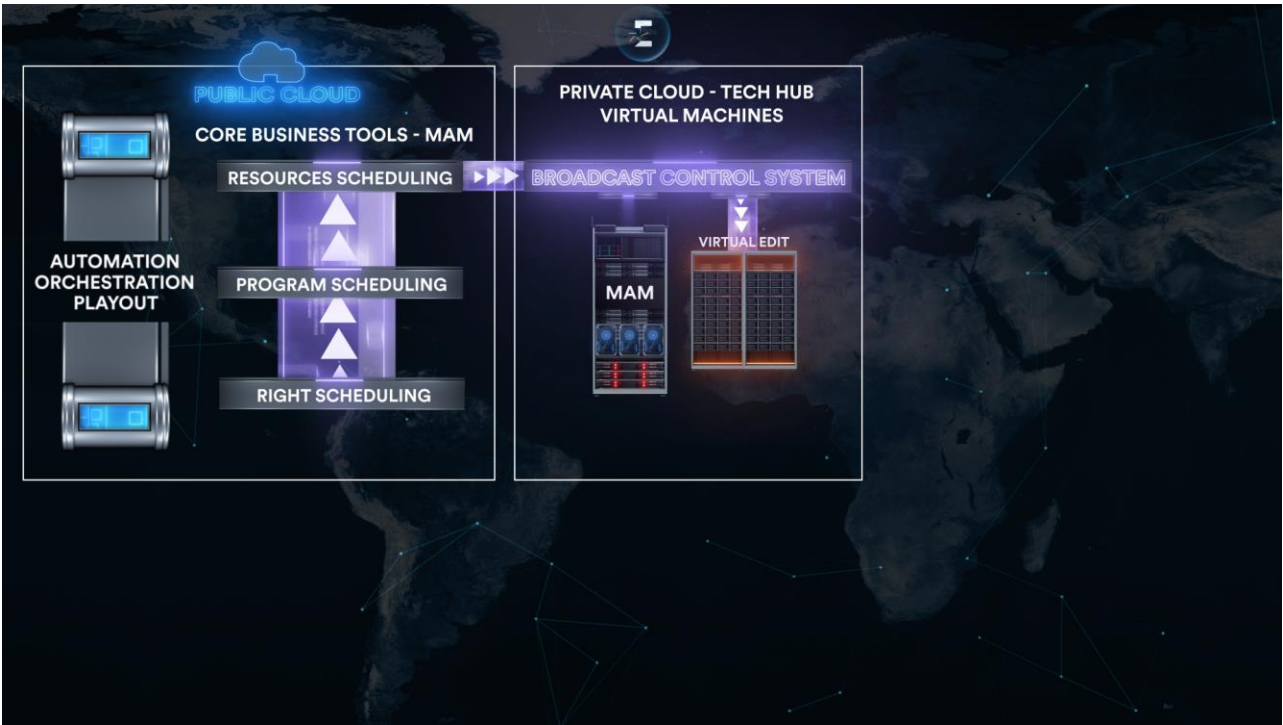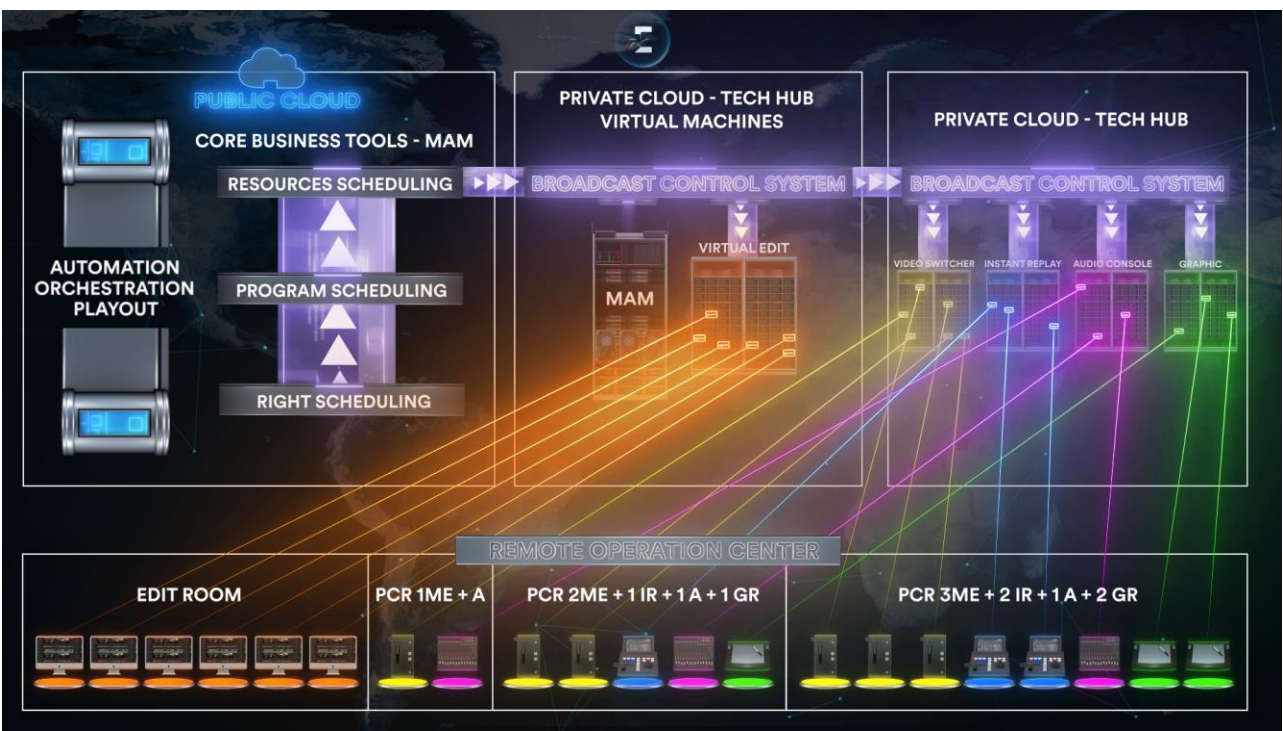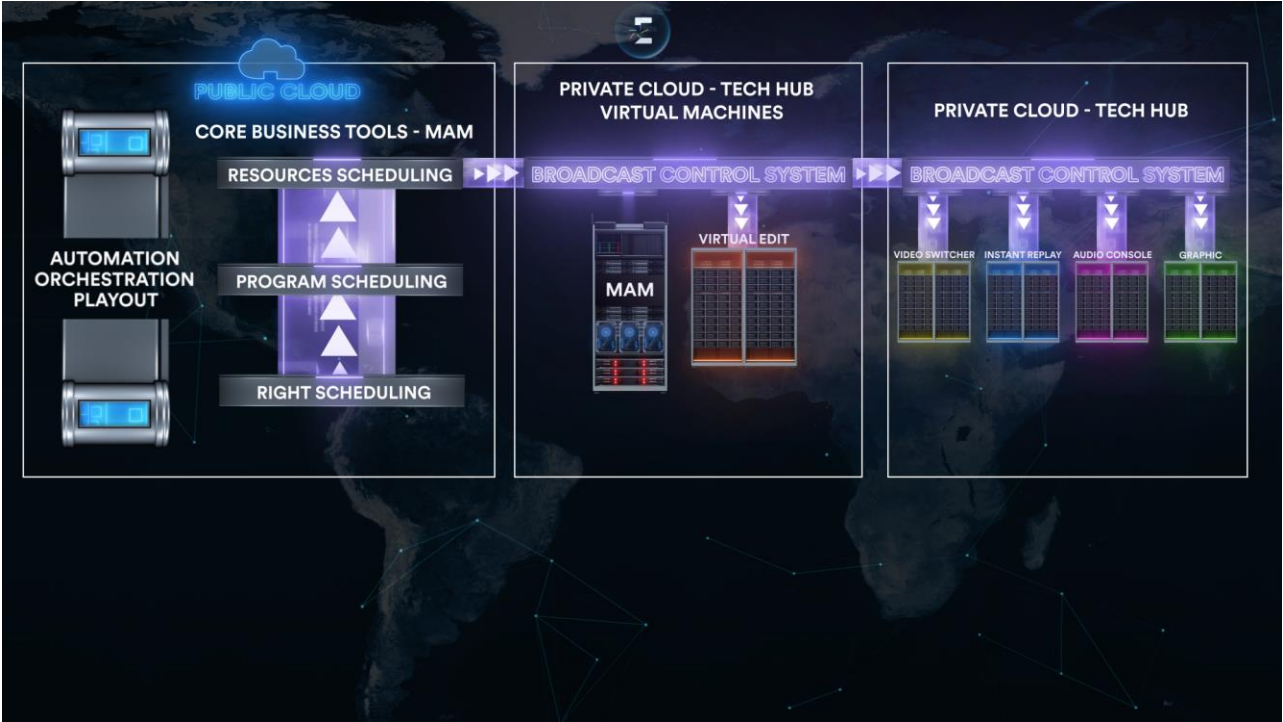- Industry consolidation and transformation
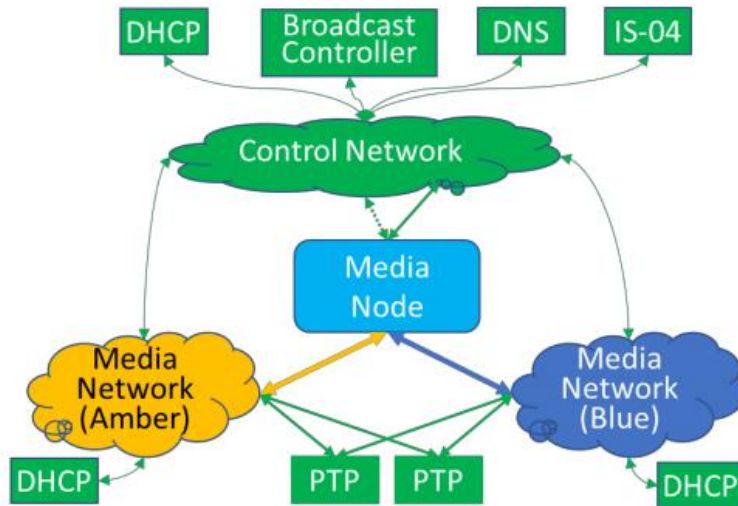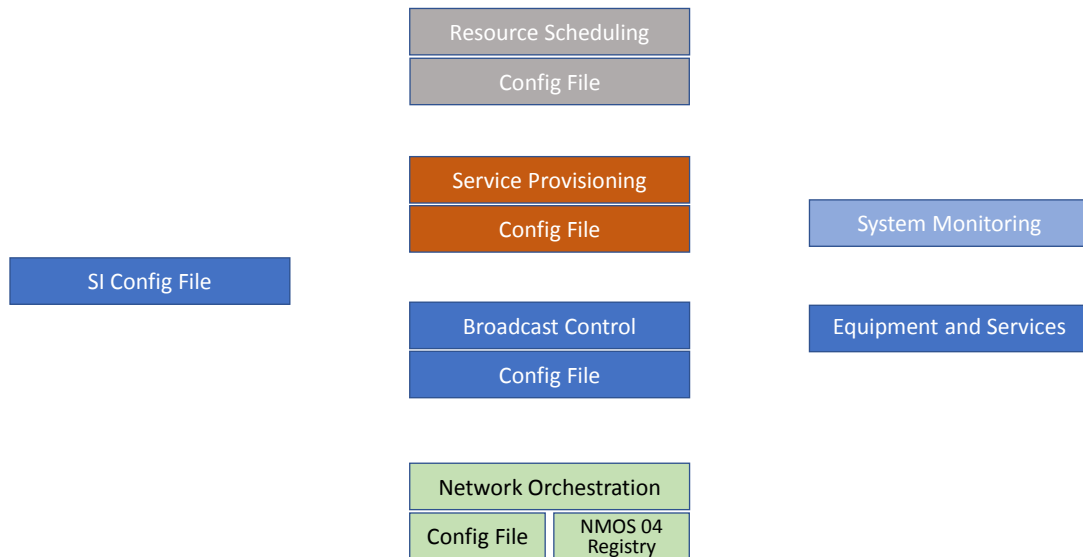
Key Project Challenge – Time

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Technology Direction

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Evolution of Virtualization for Live Production

DEDICATED HW On Premise	VIRTUALIZE MACHINES On Premise or Data Center	SHARED HW Data Center	PUBLIC CLOUD

Current ETT

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JT-NM 1001 – A Great Vision

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Our Key Reality – Keeping Everything in Sync

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Industry Encouragement
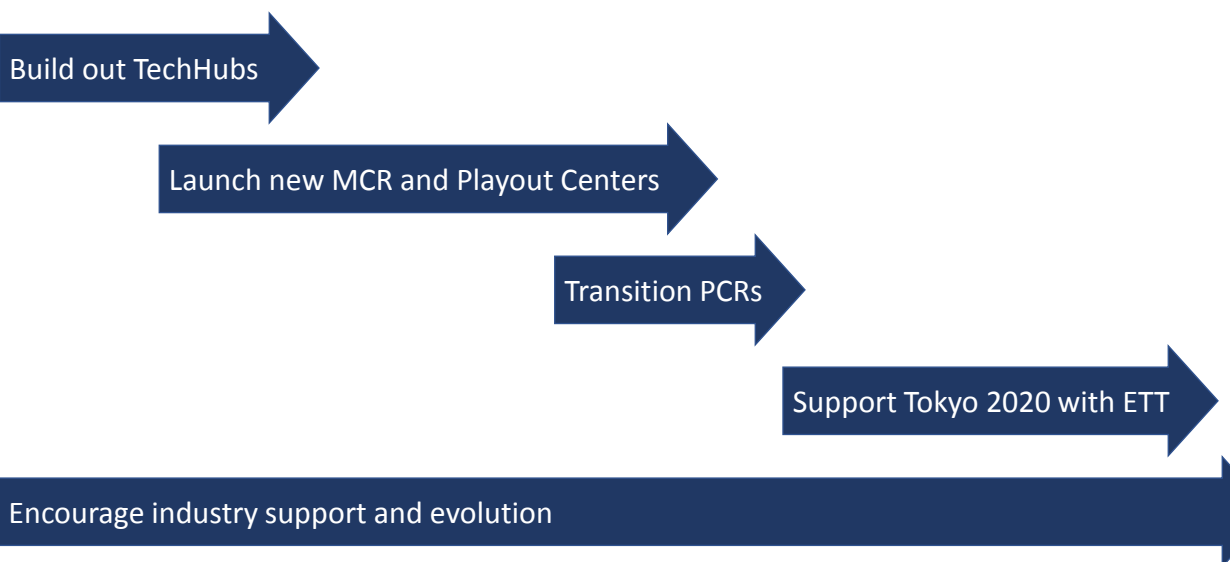
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- Embrace, support and evolve IP open standards
  - NMOS, JT-NM 1001
  - We are fully supportive and hope that the industry and vendors enable greatly reduced installation times and simplified deployments
- Create best practices for system management
  - NMOS and JT-NM 1001 provide some good building blocks – but limited deployments and no defined industry best practices makes is very challenging
- Encourage and evolve IT and Cloud approaches leveraging proven models
  - DNS, DHCP, CloudStack services, Micro Services and Cloud/IT application management/deployment
  - Aspects of system configuration and ongoing management is undefined

The industry needs projects to evolve and define best practices

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Our Path Forward

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Build out TechHubs

Launch new MCR and Playout Centers

Transition PCRs

Support Tokyo 2020 with ETT

Encourage industry support and evolution

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