From Camera to Content Owner to Consumer
Networked Production to Distribution

Event
Studio
Home

Production
Broadcaster
Service Provider

Media Services and Workflow Orchestration
Integrating Studio and Network to offer end-to-end Automated Service Provisioning

Net Insight / ScheduALL
WHAT IS REMOTE PRODUCTION?
PRODUCE MORE
LIVE CONTENT
REDUCE COSTS
Better Quality
Ready for 4K
Social Challenges
Coordination Onsite
People want to Travel to Events
Communication
Workflow Integration
TECHNICAL CHALLENGES

Network Availability
Quality of Service
Delay
Synchronization
Interoperability
Sotchi 2014

Use network links instead of Video and Audio links
Very low end-to-end latency
Use of frame synchronizers

Venue connections
HD-SDI in & out
MADI in & out
Ethernet bi-directional
Studio synch from IBC

Studio connections
HD-SDI in & out
MADI in & out
Ethernet bi-directional
Studio synch from IBC

Use network links instead of Video and Audio links
Very low end-to-end latency
Use of frame synchronizers
Venue

Multiple camera feeds
2 x return
Hitless 1+1
JPEG 2000 Encoding

Studio Headquarters

Have on screen talent at every production
Reduced own staff on site
Use Provider Network
Cost Savings

20 Venues across the country
Staff arrives 2 hrs before broadcast

Soccer
SOLUTION FOR REMOTE

- Interoperability
- Low latency compression
- Multi-feed sync
- Multi-service
- Gen-Lock
- QoS assured transport

SD/HD/3G/4K/SMPTE2022 Transport, optional J2K
Discrete Audio (AES/EBU, MADI, AES-67)
Ethernet transport for equipment control & intercoms

Net Insight / ScheduALL
REMOTE PRODUCTION SOLUTION

Platform

- QoS
- One-Box-Solution
- End-To-End Control

Infrastructure

- Customer Provisioned Network Solutions
  - Live-OTT
  - Internet

Services

- Remote Pre-Configuration
- Event services & Packages
- Go-Live Support

Software

Hardware
Example Setup

Remote site

- CCUs
- Video transport
  - HD-SDI
  - HD-SDI
  - HD-SDI
  - HD-SDI (Ret 1)
  - HD-SDI (Ret 2)
- Sync
- MADI/AES*
- Ethernet transport
- OCP
- Intercom
- Tally/GPIO
- Intranet
- Converter DBg/RS to Ethernet for Tally
- Intercom ctrl

Studio/at-home

- Vision mixer
- Audio mixer
- PoE Switch
- OCP
- Intercom
- Tally/GPIO
- Intranet
- Converter Ethernet to DBg/RS

* Or embedded and transported with video

WAN
- SDH
- IP/MPLS
- Dark Fiber

JPEG 2000 enc/dec
- Example Setup
- CCUs
- Audio mixer
- Vision mixer
CUSTOMER PROVISIONED and software defined

Real-time automated order handling

Self-service order taking

Real-time automated order handling

Automated billing

Customer/network user

Orchestrator

SDN Controller

Real-time automated order fulfillment
ARCHITECTURE – COMPLETE STACK

Applications
- Remote Production
- Live Production
- Post Production
- File-based Workflows

Workflows
- NIMBRA Video Gateways
- IP routers and switches
- Multiservice Gateways

Control & Orchestration
- Customer Portal
- Mobile Portal
- File Acceleration
- NMS
- App X
- App Y
- App Z

SDN Controller
- Orchestration
  - SDI Video/Audio
  - IP Video/Audio (2022)
  - Carrier Ethernet
  - File Transfers

Net Insight / ScheduALL
REMOTE HANDBALL EXAMPLE

Net Insight / ScheduALL

We are doing Handball today...

Small 3,5 ton van arrives at 16:00

Let us get out the OB Van!
“THIS IS THE OB VAN”

Production arrives with OB van inside

Here it is...

Let us plug the thing in.
“LET’S GET REMOTE”

And on the back side...

This is this MSR we have to plug in.
"ONE CABLE TO CONNECT"

Only 50 meters away...

Plug it in...

Good this is just one cable!
OB VAN UP AND RUNNING

... at a glance ...

... and we can go live...

Green, green, green... 😊
“SET UP THE REST”

... but first let us pull cables...

... and set up the cameras

... and the commentary position...
Hi HQ, can you already hear me and get our picture?

Yes, all fine. We have audio and video. Can we check the Tally?

... at the same time ...
“WE ARE LIVE”

One hour later...

Tally works...

Journalists and commentary on Air.

Match start...

OK Remote... you are live!
WHAT HAPPENS AT HOME?

“at home” in headquarters...

OK Remote... you are live!
"BUSINESS AS USUAL"

... business as usual...

... Camera 2...
“BUSINESS AS USUAL”

We can use our great graphic engine.

Here we have space and always a backup if we need it.
THANK YOU!

We never had any problems!
Remote Production at dedicated locations

On-Demand Remote productions

Virtualization of production tools

Location independent workflow-automation

Global content generation

Today – OB van on site
REMOTE PRODUCTION

Platform
Simple Setup
The WAN under control
Every Infrastructure – Every Topology

MORE LIVE
Thank You!

MANAGING TECHNOLOGIES IN TRANSITION