


A blue-themed slide for a webcast. At the top, there are logos for EBU, SMPTE, and VSF (Video Services Forum). The main title is 'Networked Media and the Task Force' in a bold, black sans-serif font. Below it, the text reads 'SMPTE Standards Update Webcast' and '4 March 2014'. The presenter's name 'Félix Poulin, EBU' and email '[poulin@ebu.ch](mailto:poulin@ebu.ch)' are listed. A smaller SMPTE logo is in the bottom right. At the bottom, a copyright notice reads '© 2014 • Powered by SMPTE® Professional Development Academy • www.smpte.org'.

**EBU**  

## Networked Media and the Task Force

SMPTE Standards Update Webcast  
4 March 2014

Félix Poulin, EBU  
[poulin@ebu.ch](mailto:poulin@ebu.ch)



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## SMPTE Standards Updates

- Series of quarterly 1-hour webcasts covering key activities in the SMPTE Standards Community
- Free informational service –Open to the Public
- Sessions are recorded for on-demand viewing

## Your Host

**Joel E. Welch**  
Director of Education  
SMPTE



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## Today's Guest Speaker

**Felix Poulin**  
Senior Engineer  
Technology &  
Innovation at EBU



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## Networked Media



More than just replacing SDI by IP



Many pieces of the puzzle (JTNM Phase 1)



Next step: look at interoperable systems (JTNM Phase 2)

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## Replacing SDI\* by IP\*\* in the studio

(or how to preserve nowadays production model)

\*And other professional interfaces/signals and equipment (SDI, AES, MADI, Black Burst/Tri-Level, LTC, Serial control, Cross point router, etc.)

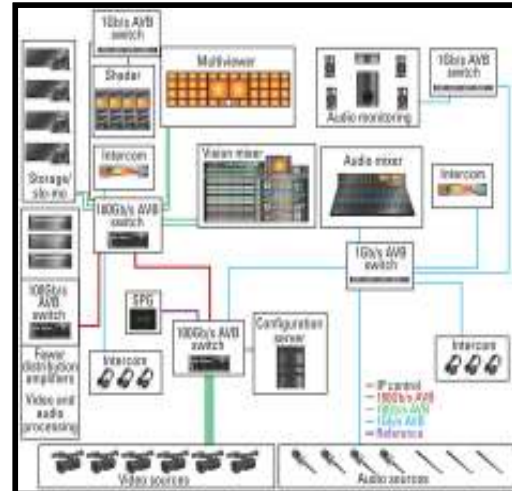
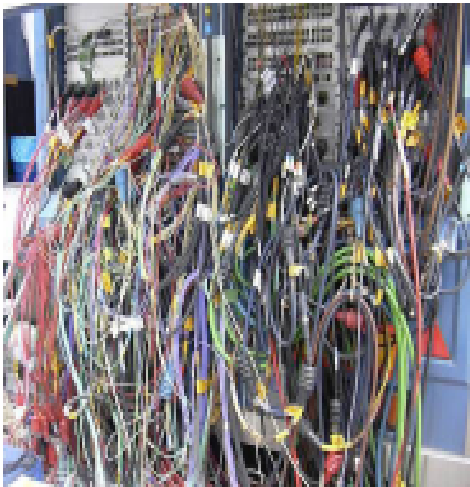


\*\* packet networks (IP, Ethernet, etc.) and generic IT (COTS switches, Servers, Storage, etc.)



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## Unified Audio/Video/Metadata/Sync/Control



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## Signal aggregation - Bidirectional

1080i59

Ethernet	AVC-I @ 100 Mbit/s*	4:1 @ 250 Mbit/s*	Uncomp@ 1.5 Gbit/s
<b>1 GigE</b>	<b>8</b>	<b>3</b>	<b>0</b>
<b>10 GigE</b>	<b>87</b>	<b>35</b>	<b>7</b>
<b>40 GigE</b>	<b>348</b>	<b>139</b>	<b>27</b>
<b>100 GigE</b>	<b>870</b>	<b>348</b>	<b>67</b>

2160p120

Ethernet	HEVC-I @ 600 Mbit/s*	8:1 @ 2 Gbit/s*	Uncomp@ 24 Gbit/s
<b>1 GigE</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>10 GigE</b>	<b>14</b>	<b>4</b>	<b>0</b>
<b>40 GigE</b>	<b>58</b>	<b>17</b>	<b>2</b>
<b>100 GigE</b>	<b>145</b>	<b>43</b>	<b>4</b>

\*plus 15% headroom

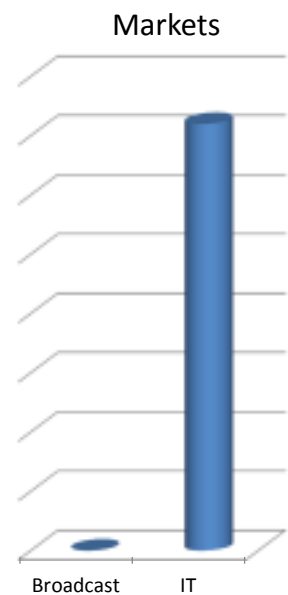
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## SDI: It works! (and does IT works as well?)

- Open and widely adopted Standards
- Plug & Play – Simple & Easy
- Bit perfect pictures, highly reliable (BER 10E-14)
- Low latency (ns)
- Reserved constant bandwidth (e.g., HD@1.5 Gbit/s)
- New SMPTE standards in preparation for UHD (6G, 12G, 24G)

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## COTS = Cost Cuts ?



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## Point of view of users (or how to adapt to a changing business?)



Introducing: The content creation system builder, the content creator, the viewer

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## Multiple Contents



For the viewer: Enriched, Targeted, Personalized and Contextual content, the interaction, on more Platforms, Anywhere, Anytime, etc.

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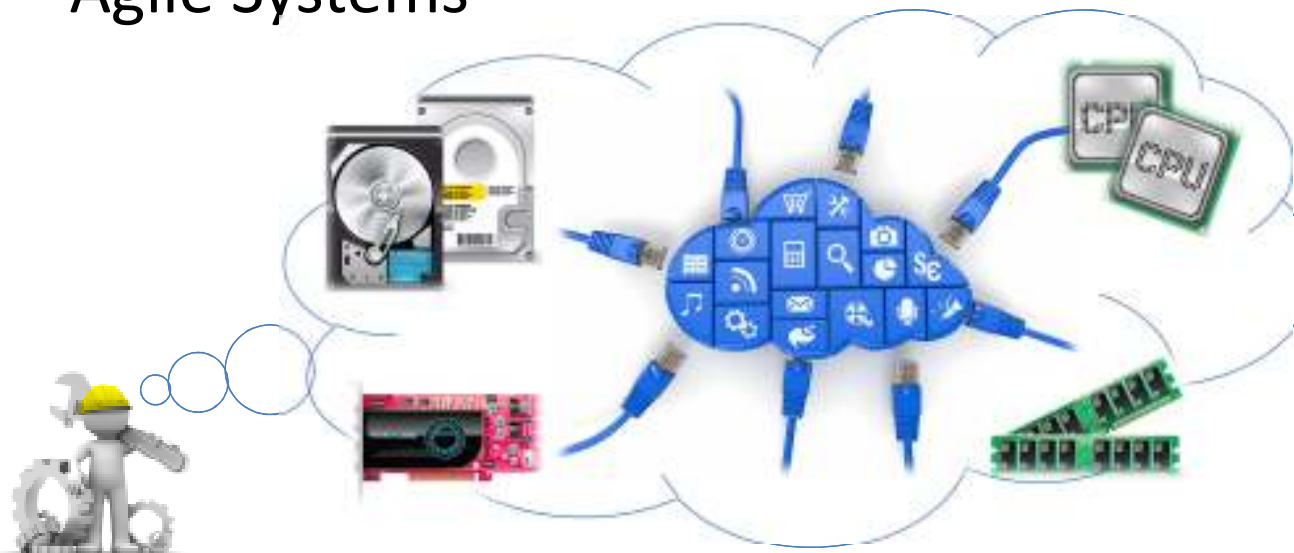
# Flexible Workflows



For the content creator: Collaborative, Remote, Distributed, Flexible, Automated Workflows; New UI, New Business Models, etc.

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# Agile Systems



For the system builder: Agile systems, On Demand Resources, Distribution of Resources, etc.

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## Networked Media: More than just replacing SDI by IP!

**Multiple** Contents for the Viewer

**Flexible** Workflows for the Content Creator

**Agile** Systems for the System Builder

**Obvious candidate: IT & Networks!**



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## Before the Task Force

- Initial meeting initiated by the VSF, hosted by Turner in Atlanta
- March 2013 - 35 participants
- Broadcasters & Networks, Manufacturers, Consultants, Standards
- Goal: Business-driven discussion about the use of packetized networks in professional media applications.
  
- Key for success: **Interoperability**
- The best way to achieve: **Industry-wide Coordination**
- Need to start: **Now!**

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## Joint Task Force on Networked Media

Created in April 2013

*“... help **manage the transition** from specialty broadcast equipment and interfaces (SDI, AES, etc.) to IT-based packet networks (Ethernet, IP, etc.)”*

234 participants on [it-nm@videoservicesforum.org](mailto:it-nm@videoservicesforum.org)

[tech.ebu.ch/JTNM](http://tech.ebu.ch/JTNM)



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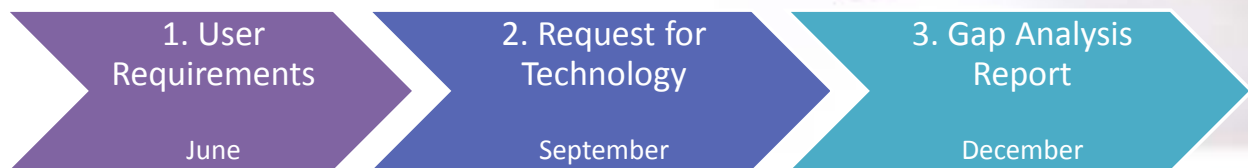
## JT-NM – Admin Team

Brad Gilmer – VSF - co-chair  
Richard Friedel – FOX - co-chair  
Hans Hoffmann – EBU - co-chair  
Peter Symes – SMPTE - co-chair  
Felix Poulin – EBU  
Bob Ruhl – VSF



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## JT-NM Phase I - 2013



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## 1. Collection of User Requirements

User stories:

As a [ROLE] I want to [FUNCTION] so that [BUSINESS VALUE]

Business driven

Open call, 37 contributors

136 original stories

Grouped in 17 super stories

Published in June 2013

### Task Group

Brad Gilmer – VSF - Leading  
Al Kovalick – Media Systems Consulting  
John Mailhot – Harris Broadcast  
Karl Schubert – TechNova Consulting LLC  
Felix Poulin – EBU  
Bob Ruhl – VSF

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## 2. Request for Technology

“What Technologies are addressing the User Requirements?”

Published in September 2013 at IBC

Deadline to respond 1st November

**Task Group**

Felix Poulin – EBU - Leading

Markus Berg – IRT

Thomas Edwards – FOX

Brad Gilmer – VSF

Al Kovalick - Media Systems Consulting

Sonja Langhans – IRT

Bob Ruhl – VSF

Karl Schubert – TechNova Consulting LLC

## 3. GAP ANALYSIS

“What are the bits and pieces?”





### 3. GAP ANALYSIS - Content

- ✓ 66 Technologies from 27 respondents
- ✓ Fulfillement of User Requirements
- ✓ Summary of individual responses
- ✓ Links to full responses
- ✓ No competitive analysis

ALC NetworX GmbH  
Avnu Alliance  
Audio Engineering Society  
Axon Digital Design  
Barco NV  
BBC R&D  
Cisco Systems  
Dolby Laboratories  
EBU/AMWA FIMS Project  
Ether 2  
European Broadcasting Union  
Evertz  
Harris Broadcast  
intoPIX SA  
L2tek  
Macnica Americas  
Media Links  
Mellanox Technologies  
Net Insight  
Nevion Europe AS  
Nine Tiles  
OCA Alliance  
Quantel Ltd  
Scalable Video Systems GmbH  
SDVI Corporation  
Sony Corporation  
Xilinx

### 3. GAP ANALYSIS – Observations

- Interest: good response rate
- Broadcast & IT vendors
- Preview of future networked media infrastructures
- Some major vendors are missing
- Level of details vary
- Hard to evaluate interoperability

**Task Group**  
Brad Gilmer – VSF - Leading  
Thomas Edwards – FOX  
Al Kovalick – Media Systems Consulting  
Felix Poulin – EBU  
Karl Schubert – TechNova Consulting LLC  
Bob Ruhl – VSF

## Remaining Questions

- Ethernet or IP. One, the other or both?
- COTS or Media aware flavours?
- Network Management: How to get Deterministic and Plug and Play networks?
- Time & Sync – One PTP, many Profiles
- SOA for Live – What about FIMS-RT?
- Embedded vs separate audio/metadata – Is SDI over IP the way to go?
- Uncompressed or mezzanine compression? – how many streams on a 10 GigE?
- Monitoring and Control – Harmonization more than welcomed!
- Media over Enterprise or Dedicated Network?
- And many more...

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## Next Steps

“How the bits and pieces fit together?”

“What are the points of interoperability?”



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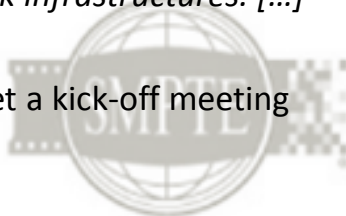
## JT-NM: Phase 2

Announced at VidTrans last week

*The primary objective of the second phase of the Task Force is to facilitate a discussion [...] so that a common model can be established for packet-based network infrastructures. [...]*

Doodle in progress to set a kick-off meeting

[tech.ebu.ch/JTNM](http://tech.ebu.ch/JTNM)



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## Join the Force!

Send an email to [bob.ruhl1@verizon.net](mailto:bob.ruhl1@verizon.net)



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## Networked Media



More than just replacing SDI by IP!



Many pieces of the puzzle (JTNM Phase 1)



Now time to look at interoperable system (JTNM Phase 2)

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## Q & A



**Felix Poulin**

Senior Engineer

Technology &  
Innovation at EBU



Joel E. Welch

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