

# Update from AMWA

## *NMOS Steering Committee*

*Félix Poulin, CBC / Radio-Canada (user-chair)*  
*Gareth Sylvester-Bradley, Sony (vendor-chair)*



# What is NMOS Steering

- Governance of Network Media Open Specifications (NMOS)
- Oversee strategy, roadmap and architecture for NMOS
- Recommend the Board of Directors to start, extend NMOS Activities and elevate publication of Specifications
- Establish a Communication Plan with AMWA Marketing



# Criteria for Quality and Adoption

- New Activity proposals - e.g. new or updated Specifications - go through a set of criteria:
  - ✓ Part of the NMOS roadmap
  - ✓ Compatible with NMOS architecture
  - ✓ Verified that no existing solution is suitable
  - ✓ Wide support, engaged participation, good representation of users
  - ✓ Definition of Done: proven by code and test suite coverage
  - ✓ Target timeline
  - ✓ Clear IPR policy

# Fast and Agile Specification Development

## Work In Progress

- Belongs to a well-scoped and time-bounded AMWA Activity Group
- Business owner represents the users
- Technical lead reports to Steering
- Engaged participants contribute, review, prototype and feedback
- Usually publicly available

## Specification

- Evidence of business value
- Sufficiently mature, ready for product development
  - Proved in multi-vendor workshops
  - Good test coverage in the NMOS Testing Tool
- Reviewed in Steering
- Approved by AMWA Board
- Published, immutable, with editorial and bug fixes as vX.Y.1, etc.

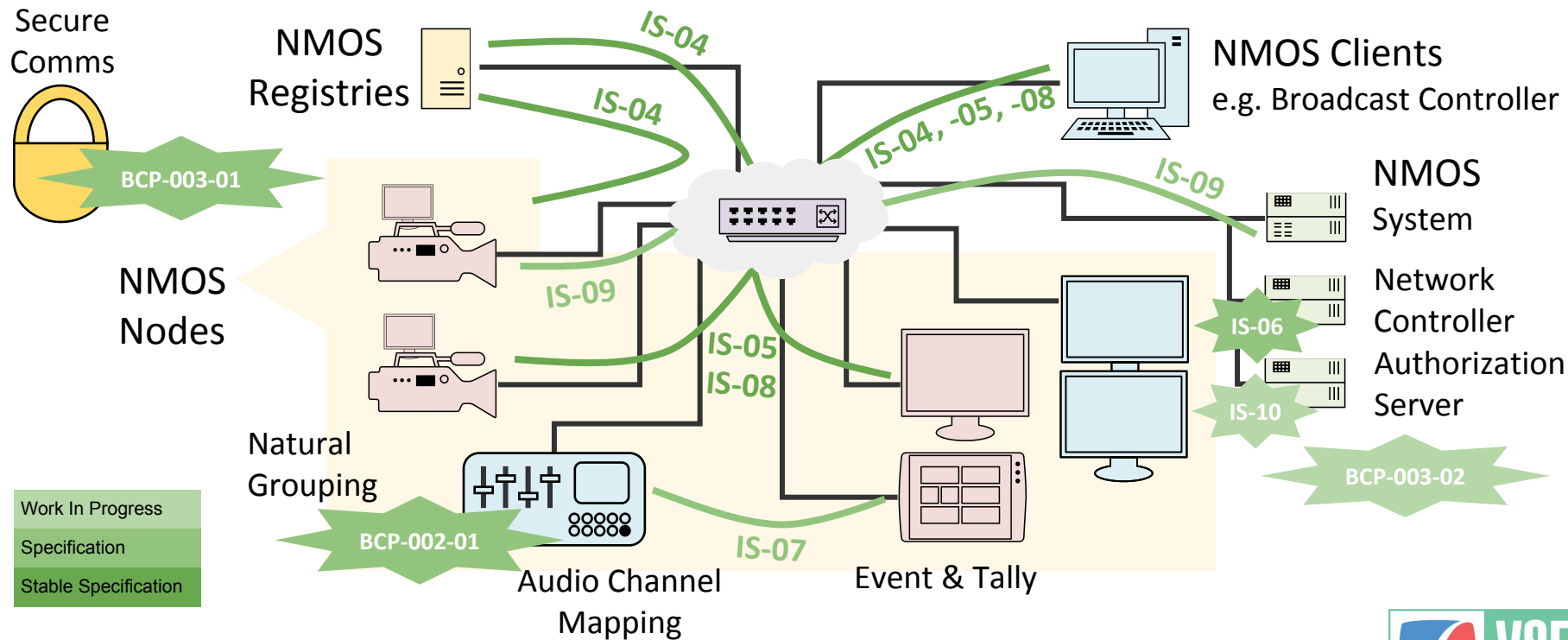
## Stable Specification

- Track record of implementation into shipping products from multiple vendors
- Assurance that no major technical changes are anticipated
- Reviewed in Steering
- Approved by AMWA Board

# Published Specifications

IS-04	<b>Discovery &amp; Registration</b> Node API, Registration API, Query API	<b>Stable Specification</b> v1.3 @ 6 September 2019
IS-05	<b>Device Connection Management</b> Connection API	<b>Stable Specification</b> v1.1 @ 6 September 2019
IS-06	<b>Network Control</b> Network Control API	<b>Specification</b> v1.0.1 @ 30 March 2020
IS-07	<b>Event &amp; Tally</b> Events API	<b>Specification</b> v1.0.1 @ 6 September 2019
IS-08	<b>Audio Channel Mapping</b> Channel Mapping API	<b>Stable Specification</b> v1.0.1 @ 22 July 2020
IS-09	<b>System Parameters</b> System API	<b>Specification</b> v1.0 @ 16 June 2020
BCP-003-01	<b>Secure Communication in NMOS Systems</b>	<b>Specification</b> Released @ February 2019

# AMWA NMOS in use



# Fills and Gaps in the control plane

## THE TECHNOLOGY PYRAMID FOR MEDIA NODES

Minimum User Requirements to Build and Manage an IP-Based Media Facility using Open Standards & Specifications.

**EBU**

Tech 3371 Version 2 - 2020  
[tech.ebu.ch/pyramid](http://tech.ebu.ch/pyramid)

### II. Time and Sync

1. PTP monitoring with IETF RFC 8575 or RFC 8173
2. PTPv2 configurable within SMPTE and AES profiles
3. Multi-interface PTP redundancy
4. Synchronisation of audio, video and data essences

### IV. Configuration and Monitoring

1. IP assignment and low-level configuration: DHCP, AMWA IS-09 ✓
2. Open configuration management
  - e.g. YANG / OpenConfig, Open API, SSH ...
3. Open monitoring protocols
  - e.g. YANG / OpenConfig, MQTT, Syslog, SNMPv3, ...



### I. Media Transport

1. Single link video SMPTE ST 2110-20
2. Software-friendly SMPTE ST 2110-21 Wide video receivers
3. Universal, multichannel and low latency audio SMPTE ST 2110-30 Level B
4. Stream protection with SMPTE ST 2022-7:2018

### III. Operational Control

1. Discovery and Registration: AMWA IS-04, BCP-002
2. Connection Management: AMWA IS-05
3. Device Control: Open Methods and AMWA IS-07
4. Audio Channel Mapping: AMWA IS-08
5. Topology discovery: LLDAP

### V. Security

1. EBU R 148 Security Tests
2. EBU R 143 Security Safeguards
3. Secure HTTPS API calls: AMWA BCP-003 ✓



Endorsed by:



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Widely available

Partially available

Rarely available

# Ongoing Activities

Security	IS-10 Authorization BCP-003-02 Authorization Practice BCP-003-03 Certification Provisioning	Target September 2020 Target September 2020 Target October 2020
Receiver Capabilities	BCP that builds on IS-04	Target October 2020
EDID Connection Management	Phase 1 on Architecture & design To support IPMX requirements	Target October 2020
Device Control Modelling	Phase 1 studied existing device control models.	Phase 2 proposal in preparation



# Fostering adoption: it is not enough to make good technology!

## AMWA Marketing implementation of the NMOS Communication Plan

- Refresh of NMOS website
- Refresh of technical documentation
- Coordinated messaging in all communication opportunities
  1. Proven benefits of the open control API
  2. NMOS is easy to implement
  3. NMOS is key to a complete solution



# Easy-NMOS – How to get started

- Starter kit for users and implementers
- Incorporating Docker containers for NVIDIA/Sony nmos-js **Controller**, Sony nmos-cpp **Registry** and a virtual **Node**, AMWA NMOS **Testing Tool**, and supporting services
  - OSS contributions from CBC and other AMWA members
  - Containers proven in the JT-NM Tested programme
- Launch easy-nmos with one **docker-compose** command
- Stay tuned for Richard Hastie's (NVIDIA) presentation at [ipoktoberfest.com](http://ipoktoberfest.com) and release to GitHub, end of September



# Thanks

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