Event and Tally
in an IP world

David Atkins, CTO

Suitcase TV Ltd

IP SHOWCASE THEATRE AT IBC – SEPT. 14-18, 2018

Why do I need Event & Tally?

- GPI's
- AMWA NMOS IS-07
- Relationship with IS-04, IS-05 and IS-07
- MQTT
- Demos at IBC 2018
- Next Steps

2

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GPI's

- Contact closures
- Relays
- Lamps
- Simple!
- Complex
- Real-time

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3

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AMWA NMOS IS-07
Project Proposal – Initial Scope of Work

NMOS Event & Tally Protocol

Item	Description
Description	Event and Tally Protocol (for consideration as AMWA published Interface Specification)
Proposer	Suitcase TV (Project Owner) - Contacts: Ed Calverley (Primary) / David Atkins
Proponents	Avid, Atos, Ericsson, BBC, Streampunk Media
Business purpose	As a vendor: • I need a simple protocol with wide industry adoption for signalling and/or becoming aware of time-critical events/states so that I can offer so that my products can operate as part of a system built from a mix of products (i.e. making my products more attractive for use in best-of-breed/multi-vendor systems). The quantity of systems listening for my events should not have any impact on my processes. I need to remain in control of how my system responds to such messages – the protocol should therefore include the ability to uniquely define where the message originated (plus an number of other minimal supported parameters such as the time and type of message). The protocol should include predefined parameters and guidelines for use for a range of generic/simple use cases but should be extensible and allow me to carry any parameters applicable for my system. As a system-integrator or end-customer: • I need to be able to build systems out of IP connected off-the-shelf hardware & software processes achieving basic levels of interoperability (e.g. button presses triggering system functions, functions triggering tally lights and functions triggering other functions), so that I am not dependant on vendors for specific development and/or integration work (essentially the IP equivalent of GPI). As a broadcaster: • I need to have my tally indicators reflect control operations in a timely manner (e.g. red-lights on cameras/monitors driven from processed which may no longer be hardware based), so that the editorial quality of my production are maintained in an IP/NMOS environment.
Architecture	It is NOT the intention of this activity to create a generic control protocol. The protocol is primarily targeted at simple interoperability allowing end-user configurable workflows (e.g. linking user actions to functions and time-critical event signalling between systems. However, such a protocol would have scope for implementing some simple workflows that could be considered 'control' such as user button presses triggering file playback or some other exposable 'action' that a vendor may chose to expose. Messages from systems when a state is changed or in response to user actions could be used to trigger other actions or to simply report state back to users (e.g. red-light/tallies or file player status lighting control panel buttons). Aims: • Define an open message protocol for signalling events in real-time. • Define transport mechanisms that will be supported (e.g. UDP Multicast/Unicast, Web Sockets etc.) - Message format should ideally be standardised across all transport methods. • Design will be consistent with the timing and identity model already being developed by AMWA. • Vendors should be able (and encouraged) to extend the parameters carried in the message with mechanisms defined to prevent conflicts (i.e. to ensure uniqueness). • Review and agree security constraints for such a protocol balancing need for real-time low latency with security overheads (probably different depending on transport type). Methodology: • Review initial protocol proposal published by Suitcase TV: https://github.com/datkins47/Event-And-Tally • Identify example use-cases (from simple GPI style interoperability to more advanced methods passing multiple parameters). • Organise multi-vendor interoperability tests, review and refine which parameters should be in base message and which are extended/optional. • Make systems that use the protocol early so real-world feedback can help shape revisions (increase chances of it being deemed fit-for-purpose).
Deliverables	• Documented protocol with example messages • Reference test software for generating/receiving example messages defined in the generic use-cases (e.g. buttons and sliders for sending events with fixed or variable values, lights & displays for receiving)
Resourcing	• Suitcase TV to host remotely accessible test network and will chair regular group meetings. • Code/Examples will be held on AMWA's GitHub (public or closed as preferred by AMWA) • A physical interop-event could also be scheduled (space permitting)

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4

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AMWA NMOS IS-07

- IP Workflows
- Timing
- Open Specifications
- Scalable
- JSON – ready for web
- Event – Sender
- Tally – Receiver
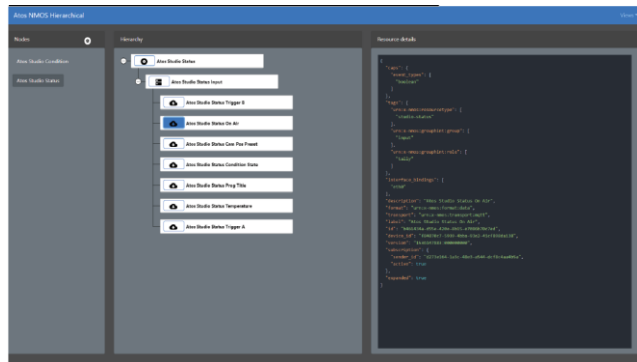- Suitcase TV iPhrame
- RTP / UDP / Multicast / TCP

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5

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Relationship with IS-04

- IS-04 Discovery
- IS-04 Registration

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6
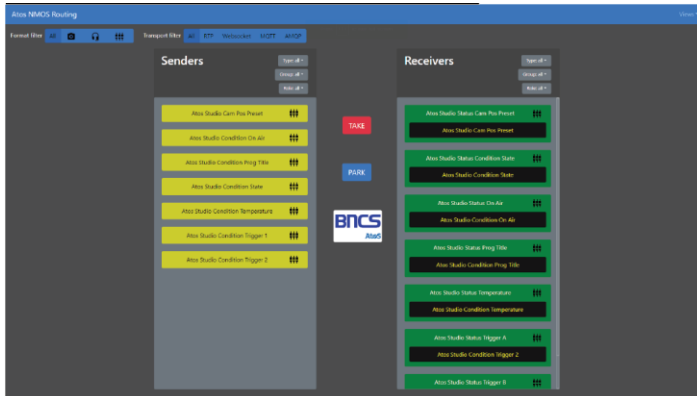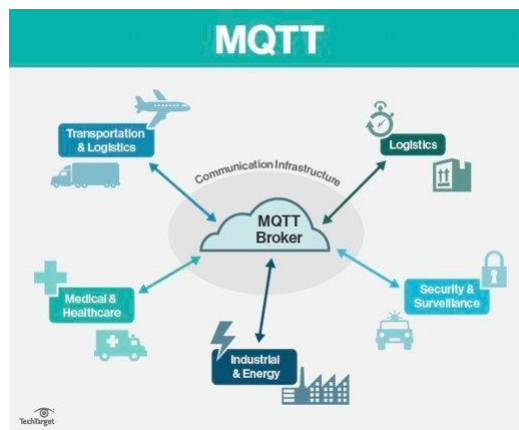
MQTT

- Message Queuing Telemetry Transport
- Publish and Subscribe (PubSub)
- Widely Adopted
- Low Latency
- Guaranteed Delivery
- Simple Code base
- Open Source Implementations
- Web Browser compatible
- You have it on your phone!
- Highly Scalable
- Facebook Messenger and WhatsApp

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9

IS-07 (Draft)

https://github.com/AMWA-TV/nmos-event-tally

```
{
        "identity": {
                "source_id": "1ea39324-a32b-4e1d-86e9-33f9956ebc60"
        },
        "event_type": "number",
        "timing": {
                "creation_timestamp": "1532504241:104000200"
        },
        "payload": {
                "value": 16342
        }
}
```

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10

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Demos @ IBC 2018

- Pebble Beach - Stand 8.B68
- Partnered with BNCS by AtoS

- Suitcase TV – Stand 2.C10
- Partnered with BNCS by AtoS

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11

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Next Steps

- Ratify draft specification – October 2018
- Encourage vendors and customer adoption
- Consider how to extend where appropriate

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12

Thank You

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