IETF 111 DTN WG
Asynchronous Management Architecture

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Agenda

• What is AMA (and ADM, AMP)
• Status within IETF and feedback
• Next Steps
• Discussion
What is the Architecture

From draft-ietf-dtn-ama

• Agents
  - Run on Managed Devices
  - Configure/Report on devices
  - Heavy autonomy and parameterized control

• Manager(s)
  - Collect/Fuse data from Agents
  - Configure Agent behavior
  - Open-loop control

• ADMs
  - Well-named Data and Controls
  - Merge of NM data representations
    - Telemetry and Command Workbooks
    - Management Information Bases (from SNMP)
    - YANG modules (from NETCONF)
AMA Status in IETF

https://datatracker.ietf.org/doc/draft-ietf-dtn-ama/

• Went through DTN WG last call, April 2021
• Received minor comments – asking to extend definition of AMA beyond “network management”
  - A valid comment – AMA should transcend many use cases, many applications
  - Support management of networks, systems, services, applications
  - Controls and reports, transmitted over any media, over any network, including carrier Pidgeon
• AMA should be generic, ADMs define applications, AMP defines functionality

• Can ADMs support all this flexibility?
• Does the AMA itself need to be modified to support these new use cases? (including consensus and federated management)
Motivation for Asynchronous Network Management

**BP bridges Internet and Space**

- **Transport**
  - Delayed/disrupted links
  - Different link types
  - Different naming/addressing
  - Resource-constrained nodes

**AMP bridges Internet and Space**

- **Management**
  - "Push" Information
  - Automation/Autonomics
  - Controls and Data
  - Constrained nodes

**DTN Transport**

- Delayed/disrupted links
- Different link types
- Different naming/addressing
- Resource-constrained nodes

**Internet Transport**

- Available Links
- Lots of Data Volume
- Fixed Addressing
- High Processing Ability

**DTN Mgmt**

- "Push" Information
- Automation/Autonomics
- Controls and Data
- Constrained nodes

**Internet Mgmt**

- "Pull" Information
- No Autonomy
- Just Data Monitoring
- Lots of bandwidth
- Lots of processing
Additional use cases for AMA

• Smart city connectivity could feel a lot like DTN
• Use the AMA to manage IoT devices, critical infrastructure
• Controls over short range comms delivered by drive-by units
• Reports collected at the same time
AMA Next Steps - Publish a new/final version of AMA

• **Open questions coming out of WG last call**
  - Clarify:
    ▪ Bounds of management beyond the network
    ▪ Scope and function of agent autonomy
    ▪ Actor to Actor (manager to manager/agent to agent) relationships
    ▪ Requirement for agents to be managed or not
    ▪ Tight integration of standardized data models (public and private)

• Comments? Questions?