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IETF 118 DTN Management Architecture

DTNMA Working Group Last Call Updates

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DTNMA Status

- **Current Version 07**
- **Completed Working Group Last Call**
- **Ops area and DTN WG comments addressed**
- **Minor terminology edits, technical content remains unchanged**

Workgroup: Delay-Tolerant Networking

Internet-Draft: draft-ietf-dtn-dtnma-06

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DTN Management Architecture

Abstract

The Delay-Tolerant Networking (DTN) architecture describes a type of challenged network in which communications may be significantly affected by long signal propagation delays, frequent link disruptions, or both. The unique characteristics of this environment require a unique approach to network management that supports asynchronous transport, autonomous local control, and a small footprint (in both resources and dependencies) so as to deploy on constrained devices.

This document describes a DTN management architecture (DTNMA) suitable for managing devices in any challenged environment but, in particular, those communicating using the DTN Bundle Protocol (BP). Operating over BP requires an architecture that neither presumes synchronized transport behavior nor relies on query-response mechanisms. Implementations compliant with this DTNMA should expect to successfully operate in extremely challenging conditions, such as over uni-directional links and other places where BP is the preferred transport.

DTNMA Document Scope

Remove management/data model considerations

- **DTNMA is an architecture document**
- **Separation of the DTNMA from supporting data/management models and protocols**
- **DTNMA Application Data Model**
 - **Application Management Model**
 - **Operational Data Models**

Workgroup: Delay-Tolerant Networking
Internet-Draft: draft-birrane-dtn-adm-05
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DTNMA Application Management Model (AMM) and Data Models

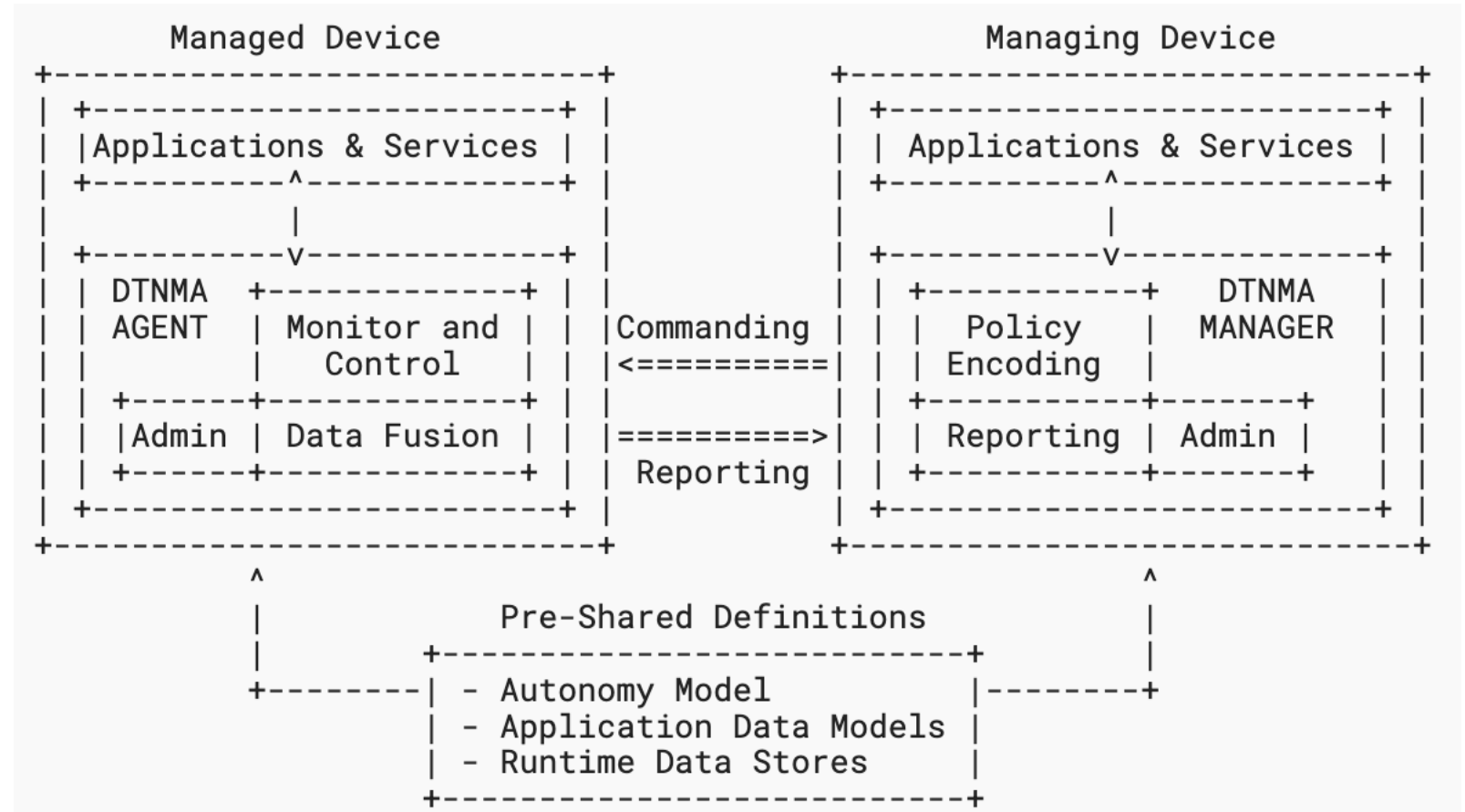
Abstract

This document defines a data model that captures the information necessary to asynchronously manage applications within the Delay-Tolerant Networking Management Architecture (DTNMA). This model provides a set of common type definitions, data structures, and a template for publishing standardized representations of model elements.

DTNMA Reference Model

Minor terminology update for consistency across NM documents

- Agent-Manager messaging terminology consistent with the AMM, ADM, and AMP
- Changed “Control” to “Commanding”
- ADM makes distinction between a Control and a Macro
- Similar to difference between the generation of a report and the actual reporting activity



DTNMA Reference Model

Discussion of Existing Network Management Protocols

- Challenged network usability issues for existing protocols
 - SNMP and *CONF protocols (NETCONF, RESTCONF, CORECONF).
 - Not with SMI or YANG models.
- Indicate difference between:
 - Data model semantics
 - SMI
 - YANG
 - Model Syntax
 - ASN.1
 - YANG
 - Protocol for data manipulation
 - SNMP
 - *CONF
- *CONF protocols share an XMI infoset, but provide separate encodings

Use Cases and ACLs

Clarifying ACL representation

- Use Case: Multiple Administrative Domains
- ACLs are **associated** with policy expressions, but not required annotations
- ACLs are internal to DTNMA Agents – not supplied explicitly in messaging
- Avoid implication that an ACL is explicitly included in messaging and/or transmitted over-the-wire

