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IoT in the IETF

“making the Internet work better :-)”

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- **Introduction to the IETF**
- IoT in the IETF
- Personal Contributions
- Takeaway

Introduction to the IETF

- The Internet Engineering Task Force (IETF) is a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet.



<https://ietf.org/>

- IETF Mission
 - The mission of the IETF is to **make the Internet work better** by producing high quality, relevant technical documents that influence the way people design, use, and manage the Internet.

RFC (Request For Comments)

IPv6
(RFC 8200)

UDP
(RFC 768)

HTTP/1.1
(RFC 7230)

TCP
(RFC 793)

Open process

Technical competence

Volunteer Core

Rough consensus and running code

Protocol ownership

Topics of Discussions

- Introduction to the IETF
- **IoT in the IETF**
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IETF

Internet Area:

6TiSCH: IPv6 over the TSCH mode of IEEE 802.15.4e

6lo: IPv6 over Networks of Resource-constrained Nodes

Lwig: Light-Weight Implementation Guidance

LPWAN: IPv6 over Low Power Wide-Area Networks

Security Area:

Ace: Authentication and Authorization for Constrained
Environments

Suit: Software Updates for Internet of Things

Teep: Trusted Execution Environment Provisioning

IETF

Applications and Real-Time Area:

Core: Constrained RESTful Environments

CBOR: Concise Binary Object Representation Maintenance
and Extensions

Routing Area:

ROLL (Routing Over Low power and Lossy networks)

Internet Research Task Force (IRTF)

T2TRG: Thing-to-Thing Research Group

COIN: Computing in the Network

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- Co-chairing ROLL since 2014.
- ROLL (Routing Over Low power and Lossy networks)
 - Focus on routing solutions for the uses cases such as: smart home, building and smart city.
 - Main Protocol is RPL (RPL: IPv6 Routing Protocol for Low-Power and Lossy Networks)
 - Oriented to constrained networks and IPv6.
 - ROLL work on coordination with other working groups.

<https://datatracker.ietf.org/wg/roll/about/>

- Member of:
 - IoT directorate
 - Routing directorate
 - General-area review team
- IETF Topics of research:
 - draft-ietf-roll-useofrplinfo: Using RPL Option Type, Routing Header for Source Routes and IPv6-in-IPv6 encapsulation in the RPL Data Plane
 - CoAP Protocol negotiation: <https://github.com/t2trg/transport>
 - draft-delcarpio-6lo-wlanah-01: IPv6 over 802.11ah
 - draft-robles-t2trg-functionalitydescription-00: IoT Semantic Functionality Description

Takeaway

- IETF is open to everyone that desire to improve the Internet and the Internet of Things :-)
- The main participation is through mailing lists
- IETF has no membership fee
- To participate, please check: <https://ietf.org/about/participate/> :-)

Thank you! :-)

Happy to answer your questions! :) - maria.robles@aalto.fi

RFC 8140

ASCII Art

1 April 2017

2.2. The Unicorn Rampant

Many things in the IETF rely on majick. Without pixie dust or other artful contributions from the world of faerie, it is unlikely that the Internet would work at all.

Software Defined Networking (SDN) is a concept whereby complex and devious networks may be subjugated to the will of a sorcerer (or an opensourcerer as they are sometimes know). Fundamental to the body of an SDN is the Path Computation Element (PCE) [[RFC7399](#)]. Essential to the proper function of the PCE is the Unicorn that roams the dark wood of the Traffic Engineering Database, rearing up and spearing unwitting paths on the horn of its intellect.

Unicorns, it is claimed, can only be captured by the pure of heart who have never operated a real network.

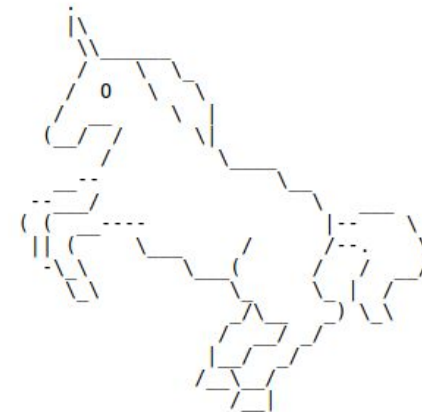


Figure 2: A Unicorn in Rampant State