IETF 97
SEOUL, SOUTH KOREA
NOVEMBER 13TH TO 18TH 2017

Contents

1. EXECUTIVE SUMMARY

In this report we are sharing the experiences and outcomes of one of our IIREF fellow Shri Shibendu Debbarma (working as Assistant Professor in Department of Information Technology, Tripura University (A Central University)) has attended the Internet Engineering Task Force (IETF) 97 meeting at Seoul, South Korea from November 13th to 18th 2017. This report summarizes the major developments in IETF 97 and also his perceptions.

There are several benefits and learnings that Shri Shibendu Debbarma gained from the visit which otherwise could not have been possible. In addition to the exposure to the way IETF meetings get conducted and the processes involved, it is the face-to-face meetings with IRTF HRPC, OPS v6ops IPv6 Operations, INT lpwan IPv6 over Low Power Wide-Area Networks WG, OPS DNSO (Domain Name System Operations), INT and many different working groups.

The IETF meeting motivates to involve and to participate more in IETF activities. The meeting helps to discuss drafts with co-authors as well as with Working Group members to pursue the future works.

2. MAJOR DISCUSSIONS IN DIFFERENT WORKING GROUPS

2.1 IRTF HRPC Human Rights Protocol Considerations

The Human Rights Protocol Considerations Research Group is chartered to research whether standards and protocols can enable, strengthen or threaten human rights, as defined in the Universal Declaration of Human Rights (UDHR) and the International Covenant on Civil and Political Rights (ICCPR), specifically, but not limited to the right to freedom of expression and the right to freedom of assembly.

The research group takes as its starting point the problem statement that human-rights-enabling characteristics of the Internet might be degraded if they are not properly defined, described and sufficiently taken into account in protocol development. Not protecting these characteristics could result in (partial) loss of functionality and connectivity. Discussed on draft-irtf-hrpc-research and questions, comments were taken and resolved.

2.2 OPS v6ops IPv6 Operations

The main focus of the IPv6 Operations Working Group is to look at the deployment and operational issues in IPv6 networks. The following drafts were presented and commented on it.

- Some Design Choices for IPv6 Networks by P. Matthews, V. Kuarsingh, draft-ietf-v6ops-design-choices.
- Unique IPv6 Prefix per Host by J. Brzozowski, G. Van De Velde, draft-ietf-v6ops-unique-ipv6-prefix-per-host.

- Enterprise Multihoming using Provider-Assigned Addresses without Network Prefix Translation: Requirements and Solution by F. Baker, C. Bowers, J. Linkova, draft-bowbakovartgwg-enterprise-pa-multihoming

- Local-use IPv4/IPv6 Translation Prefix by T. Anderson, draft-anderson-v6ops-v4v6-xlat-prefix.

2.3 INT lpwan IPv6 over Low Power Wide-Area Networks WG

LPWAN is a new working group that is focused on running internet protocols on a Low Power Wide Area Networks.

The group will:

- Produce an Informational document describing and relating some selected LPWA technologies. This work will document the common characteristics and highlight actual needs that the IETF could serve; but it is not intended to provide a competitive analysis. It is expected that the information contained therein originates from and is reviewed by people who work on the respective LPWA technologies.
- Produce a Standards Track document to enable the compression and fragmentation of a CoAP/UDP/IPv6 packet over LPWA networks. This will be achieved through stateful mechanisms, specifically designed for star topology and severely constrained links. The work will include the definition of generic data models to describe the compression and fragmentation contexts. This work may also include to define technology-specific adaptations of the generic compression/fragmentation mechanism wherever necessary.

2.4 INT 6man IPv6 Maintenance

The 6man working group is responsible for the maintenance, upkeep, and advancement of the IPv6 protocol specifications and addressing architecture. It is not chartered to develop major changes or additions to the IPv6 specifications. The working group will address protocol limitations/issues discovered during deployment and operation. It will also serve as a venue for discussing the proper location for working on IPv6-related issues within the IETF.

6man is the design authority for extensions and modifications to the IPv6 protocol.

2.5 OPS DNSO (Domain Name System Operations)

The DNS Operations Working Group will develop guidelines for the operation of DNS software and services and for the administration of DNS zones. These guidelines will provide technical information relating to the implementation of the DNS protocol by the operators and administrators of DNS zones.

INT 6lo   IPv6 over Networks of Resource-constrained Nodes WG

6lo focuses on the work that facilitates IPv6 connectivity over constrained node networks with the characteristics of:

- limited power, memory and processing resources
- hard upper bounds on state, code space and processing cycles
- optimization of energy and network bandwidth usage
- lack of some layer 2 services like complete device connectivity and broadcast/multicast

Specifically, 6lo will work on:

- IPv6-over-foo adaptation layer specifications using 6LoWPAN technologies (RFC4944, RFC6282, RFC6775) for link layer technologies of interest in constrained node networks

- Information and data models (e.g., MIB modules) for these adaptation layers for basic monitoring and troubleshooting.

- Specifications, such as low-complexity header compression, that are applicable to more than one adaptation layer specification

- Maintenance and informational documents required for the existing IETF specifications in this space.

2.6 INT Dnsbundled   Bundled Domains BOF

DNSBUNDLED is concerned with mapping and maintaining one DNS domain and all of its underlying name structure into another domain. For instance, being able to map the same labels across TLDs, such as example.com to example.net.

ART core Constrained RESTful Environments WG

Core provides a framework for resource-oriented applications intended to run on constrained IP networks. A constrained IP network has limited packet sizes, may exhibit a high degree of packet loss, and may have a substantial number of devices that may be powered off at any point in time but periodically "wake up" for brief periods of time.

The Core working group will define a framework for a limited class of applications: those that deal with the manipulation of simple resources on constrained networks. This includes applications to monitor simple sensors (e.g. temperature sensors, light switches, and power meters), to control actuators (e.g. light switches, heating controllers, and door locks), and to manage devices.

2.7 INT Intarea Internet Area Working Group

The Internet Area Working Group (INTAREA WG) acts primarily as a forum for discussing far-ranging topics that affect the entire area. Such topics include, for instance, address space issues, basic IP layer

Functionality, and architectural questions. The group also serves as a forum to distribute information about ongoing activities in the area, create a shared understanding of the challenges and goals for the area, and to enable coordination.

New work must satisfy the following conditions:

- WG consensus on the relevance for the Internet at large.

- WG consensus on the suitability and projected quality of the proposed work item.

- A core group of WG participants with sufficient energy and expertise to advance the work item according to the proposed schedule.

- Commitment from the WG as a whole to provide sufficient and timely review of the proposed work item.

- Agreement by the ADs, who, depending on the scope of the proposed work item, may decide that an IESG review is needed first.

2.8 INT Banana (Bandwidth Aggregation for internet Access BOF)

BANANA is concerned with providing coordinated Internet Access to a device over multiple links of different types to allow for increased bandwidth utilization, load-balancing and/or higher reliability. The goal of this BoF is to come up with a shared understanding of the problems that the IETF would like to solve in this space, complementing on and in collaboration with work ongoing in the MPTCP working group and the Broadband Forum.

2.9 ART Core (Constrained RESTful Environments)

Core provides a framework for resource-oriented applications intended to run on constrained IP networks. A constrained IP network has limited packet sizes, may exhibit a high degree of packet loss, and may have a substantial number of devices that may be powered off at any point in time but periodically "wake up" for brief periods of time. These networks and the nodes within them are characterized by severe limits on throughput, available power, and particularly on the complexity that can be supported with limited code size and limited RAM per node [RFC 7228].

The Core working group will define a framework for a limited class of applications: those that deal with the manipulation of simple resources on constrained networks. This includes applications to monitor simple sensors (e.g. temperature sensors, light switches, and power meters), to control actuators (e.g. light switches, heating controllers, and door locks), and to manage devices.

2.10 INT Dhc (Dynamic Host Configuration)

Presentations:

- Lw4over6-dynamic-provisioning by Ian Farrer, draft-fsc-softwire-dhcp4o6-saddr-opt ii. DHCPv6bis Open Issues Discussion, draft-ietf-dhc-rfc3315bis.

- What do about DHCPv4 Force renew Extensions, draft-ietf-dhc-dhcpv4-forcerenewextensions?
- Resurrect draft-ietf-dhc-dhcpv6-agentopt-delegate by Bernie Volz,   draft-ietf-dhcdhcpv6-agentopt-delegate.

3 IIREF fellowship

IREF is being carried out as a project by C-DAC (Center for Development of Advanced Computing), Bangalore, sponsored by the Internet Governance Division of Department of Electronics & Information Technology (DeitY), Ministry of Communications and IT, Government of India.

The fellowship applications for each IETF meeting was called through the IIREF portal and the received applications were sent to MeitY constituted committee for selection of candidates for the fellowship. IIREF provides fellowship to attend IETF events. IIREF invites applications from qualified internet professionals from Academia, Industries, and Research labs for participation in upcoming IETF Events.

4 Acknowledgement

We would like to thank Internet Governance Division, Ministry of Electronics and Information Technology (MietY), Government of India for supporting the IIREF fellowship to participate in IETF96 meeting.