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IETF

Wrap Up Session
Highlights & Conclusions

Mr. Brian E. Carpenter (IETF)

Mr. Chae-Sub LEE (ITU-T)

ITU-T Workshop on NGN (jointly organized with IETF)
Geneva, 1-2 May 2005

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Major Results from Session 1
Requirements and Functional Architecture

Basic NGN Architecture Basic NGN Architecture Principles & Issues by Keith Knightson, ITU-T Rapporteur Q3/13 (Architecture), Industry Canada.

A Brief Overview of the IETF and the Internet Architecture: Past, Present and Future by David Meyer, Leslie Daigle, and a cast of thousands, Cisco.

Session Moderators:

Dick Knight, BT and David Meyer, Cisco.

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Presentation Highlights:

"Basic NGN Architecture Basic NGN Architecture Principles & Issues" and "A Brief Overview of the IETF and the Internet Architecture: Past, Present and Future"

- Separation of Services from Transport;
  - removal of vertically integrated networks;
  - Re-distribution of service intelligence;
- Functional Architecture;
- End-to-End Architecture Issues;
- Overview of services in NGN R1;
- Described changing environment;
- Opportunities for joint collaboration;
  - Identifying areas that could be further discussed;
  - Architectural Issues;
- Concluded with Questions for ITU and IETF.

Conclusion (1)

- Discussion Included:
  - In-band vs Out-band Control Plane;
    - Requirement for Flow-state, a hot topic in IETF;
  - Flow State versus no flow state;
    - requirement to support both, not one over another;
  - Developing countries & internet: consequences, such as SPAM;
  - Business models:
    - IETF finds models restrictive & not defined, but recognises participants businesses;
  - DiffServe, and its agnostic use as a tool:
    - Small components defined in IETF, used to contribute towards overall solution and architecture.

Conclusion (2)

- Discussion Included:
  - QoS solutions in IETF recognises one size doesn't fit all, to be covered further in QoS (Session 3);
  - Internet ”Unfettered" access versus IMS "walled garden" ;
    - Separation between access network and core leads to architecture supporting both, network implementation leads to difference.
  - All applications run over transport and are wholly separated in Internet.
  - NGN ties two together supporting Network Operator charging on class of application;
  - NGN need to provide local service to customers located globally.

Major Results from Session 2

"Nomadicity & Mobility"

Presentations

- Mobility vs Nomadicity: IETF protocols for Mobile Communications/ (ITU-T) Mr Kirit LATHIA, Siemens
- Overflight of IETF work enabling Mobility and Nomadicity: The view from 10km/ (IETF) Mr Ted HARDIE, Qualcomm
- Fix Mobile Convergence's Standardization/ (ITU-T) Mr Bao Feng ZHANG, Huawei Technologies
- Geographical Location and Privacy at the IETF/ (IETF) Mr Hannes TSCHOFENIG, Siemens

Session Moderators:

Naotaka MORITA, NTT and Scott BRADNER, Harvard Univ.

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Major Results from Session 2
"Nomadicity & Mobility"

Possible discussion points

- Definition/category of mobility
- How to combine mobility and transport-aware service
- Interworking with different networks and role of intermediaries
- Application of Mobile IP to NGN
- Impact of wireless LAN technology on NGN
- Provision and assurance of location information and End-point ID
- Others

Major Results from Session 2

"Nomadicity & Mobility"

Conclusion

- Fixed and Mobile Networks are regulated and need to satisfy "public interests", unlike Internet .
- Fixed and mobile networks have different regulations - a converged network will require a new regulatory approach.
- Both the mobile and traditional telephone network assume very high reliability.
- Mobile Network ISIM function is mandatory for FMC and may be useful in NGN for fixed networks.
- NGN should have "network agnostic services/ applications" and "access technology agnostic network"

Major Results from Session 2
"Nomadicity & Mobility"
Conclusion

- Basic aim of IETF mobility effort is to let the transport and a service be independent if that would be useful.
- The aim of the fixed/mobile convergence efforts is to be able to use the same unified infrastructure (such as IMS) to support both fixed and mobile applications.
- A standard location identifier, which includes a privacy framework, can be used by many applications.
- Location information can come from the network or from the end host.

Major Results from Session 3

"QoS, Control & Signaling capabilities"

Presentations

- Quality of Service Standardization for Next Generation Networks / (ITU-T) Ms. Hui-Lan LU, Lucent
- Overview of IETF QoS / (IETF) Ms. Allison MANKIN, Shinkuro
- NGN Focus Group Activities Resource and Admission Control / (ITU-T) Mr. Keith MAINWARING, Cisco Systems
- Next Steps in Signalling (NSIS) QoS Applications / (IETF) Mr Hannes TSCHOFENIG, Siemens

Session Moderators:

Neal SEITZ, ITS and Allison MANKIN, Shinkuro

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Major Results from Session 3

"QoS, Control & Signaling capabilities"

Conclusions(1)

- ITU-T has standardized QoS requirements for current IP applications (Y.1541 QoS Classes)
  - Adopted as requirements for use in FGNGN; IETF Diffserv Basic Service Classes in development as guidelines
- Multiple resource management structures can be supported by IETF-defined network protocols
  - e.g., RSVP-TE, MPLS-DSTE, diffserv PHBs, PDBs, aggregation structure designs
- In progress: IP QoS signaling to link QoS requirements with RM protocols
  - Solutions may be path-coupled or path decoupled, end-to-end or hop-by-hop
- ITU-T has defined technology-agnostic IP QoS signaling requirements (Q-Series Supp. 51)

Major Results from Session 3
"QoS, Control & Signaling capabilities"
Conclusions(2)

- **Current Focus of QoS Control Work**

  ITU-T/FGNGN:

  - **Resource and admission control signaling architecture**
  - **Fill performance measurement & management standards gaps**

  IETF:

  - **RM protocol completion, deployment, operation, refinement**
  - **NSIS protocols: NTLP, NSLP, NAT/firewall, extensibility**

Major Results from Session 3
"QoS, Control & Signaling capabilities"
Conclusions(3)

- **ITU-T/IETF collaboration on QoS has generally been healthy and fruitful**
  - **QoS metrics defined in SG 13 and IETF IPPM are largely compatible**
  - **Y.1541 QoS class model for NSIS is under development and is fully compatible with NSIS design**
  - **Results of respective ITU-T/IETF groups could support implementation of an evolvable path-coupled QoS solution**
  - **Groups have the same users and outputs will synergistically be deployed into the same networks**

Major Results from Session 4
"Network Management"

Presentations

- ITU-T Overview of NGN Management / (ITU-T) Mr. Dave SIDOR, Nortel Networks
- / (IETF) Mr. Bert WIJNEN, Lucent Technologies
- NGN Management - En route to Convergence / (ITU-T) Mr Leen MAK, Lucent Technologies

Session Moderators:

Dave SIDOR, Nortel Networks and Bert WIJNEN, Lucent Technologies

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Major Results from Session 4

"Network Management"

Conclusions(1)

- The NGN Management Focus Group is the focal point for identifying the relevant management specifications from ITU-T and non-ITU-T sources. Initial specification candidates to be included in the NGN Management Roadmap are under evaluation.
- The identification of the NGN functional and physical entities to be managed is hampered by the abstract nature of the current NGN architecture.
- The needs of NGN and the influence of requirements based on business processes have already led to a significant evolution of management architecture.

Major Results from Session 4

"Network Management"

Conclusions(2)

- The work on NGN management based on the relevant output of the world's major SDOs, forums, and consortia has increased the need and opportunity for specification harmonization.
- The scope of NGN management is much broader than the current IETF work in this space. That is, the IETF has a lot of focus on element management protocols and on element instrumentation for management. The ITU-T and the NGN NM efforts also look at the Network Management Layer, The Service Management Layer and the Business Management layers.

Major Results from Session 4

"Network Management"

Conclusions(3)

- The IETF presented several technologies for consideration for NGN NE interfaces supporting monitoring, configuration and security. If any of those IETF technologies do not meet NGN NM requirements, then NGN participants are welcome to present those requirements in the relevant IETF Working Groups and develop solutions within those WGs in the IETF.
- IETF participants interested in NGN management should contribute relevant IETF specifications to the NGNMFG. Similarly, NGN folk interested in Network Management should check the IETF NM protocols and related work as published in various RFCs and as being produced in various IETF Working Groups.

Major Results from Session 5

"Security Capabilities"

Presentations

- ITU-T Recommendation X.805 and its application to NGN / (ITU-T) Mr Zachary Zelstan, Lucent Technologies
- Securing Real-Time Communications / (IETF) Mr Jon PETERSON, Neustar
- Next Generation Network Security (Direction and Status of FG NGN Work) / (ITU-T) Mr Jiashun TU, ZTE
- IETF Security Overview / (IETF) Mr Russ HOUSLEY, Vigil Security

Session Moderators:

Igor FAYNBERG, Lucent Technologies and Jon PETERSON, Neustar

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Major Results from Session 5

"Security Capabilities"

Good Things

- Speakers were applauded!
- Fistfights did not happen
- There *were* agreements
- A few important next steps have been identified

Major Results from Session 5

"Security Capabilities"

Agreements

- Good reception of X.805
- Russ's presentation of the threat model is very much in agreement with X.805
- NGNFG WG 5 will develop requirements and adaptation guidelines
- AAA for QoS (especially, to prevent DoS attacks) is a key capability to develop

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Major Results from Session 5

"Security Capabilities"

Next Steps

- Provide the IETF with the two draft security documents (*Requirements* and *Guidelines)*
- Plan an ITU-T tutorial on X.805 for the next IETF meeting
- Urge FGNGN WG5 participants to start actively participating in the IETF on-line discussions
- Get the IETF response to FGNGN security documents

Build on the ITU-T/IETF liaison process to start **collaboration**

Major Results from Session 6
"Evolution"

Presentations

- Evolution to NGN / (ITU-T) Mr. Ghassem KOLEYNI, Nortel Networks
- Macrocosm and Microcosm of Internetwork Evolution / (IETF) Ms Leslie DAIGLE, Verisign
- The Future Packet-Based Network (FPBN) – Issues & Questions / (ITU-T) Mr. Keith DICKERSON, BT
- SIP Evolution / (IETF) Mr. Gonzalo CAMARILLO, Ericsson

Session Moderators:

Scott BRIM, Cisco and Leslie DAIGLE, Verisign

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Major Results from Session 6
"Evolution"

- Need to proceed by stages, not "revolutions"
- Clearly only the beginning of discussion and understanding of (all) requirements
  - money & traffic flows
    - authorization
    - management
    - legal and external management
  - authentication of components
  - managing the (real or logical) separation of logical and control planes
- Ongoing interaction & discussion over time still the best mechanism for evolving NGN and use of IETF protocols

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Summary

- Summary status of the fields covered by each sessions

Fields	ITU-T	IETF
Requirements & Architecture	Release 1 scope and req. FRA and IMS based NGN	Response to market; E2e architecture principles
Mobility and nomadicity	IMS; ISIM; TR.NGN-MOB	Location based (SIP+Geopriv)
QoS & Control	QoS related deliverables (Y.1541 etc) RACF	RSVP, Diffserv, NSIS etc. MPLS-TE
Management	Focal Point in NGNMFG M.3016/M.3050/M.3060	SNMP v3 WGs : IPPM, RMONMIB, SYSLOG, NETCONF
Security	X.800 and X.805 based approach NGN Security Framework	IETF Security Protocols
Evolution	Evolution scenarios & req. to NGN Problem statements and req. FPBN	Macrocosm & Microcosm SIP Evolution

Conclusion

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Topics for Further Collaboration / Action items

- Scope for dialogue for the IETF to understand NGN requirements and interfaces
- Good opportunity to accelerate Nomadicity and Mobility study including FMC for both sides
- Need more efforts for understanding QoS and Control issues, especially Signalling aspects
- Well coordinated work in Management area (ITU-T : Architecture and Framework, IETF : Protocol aspects)
- Great opportunity working together secure the World (ITU-T : Requirements and Framework, IETF : Protocol aspects): ITU to give X.805 presentation at next IETF-meeting
- Evolution to Packet based Networks also request coordination in high level as well as practical aspects

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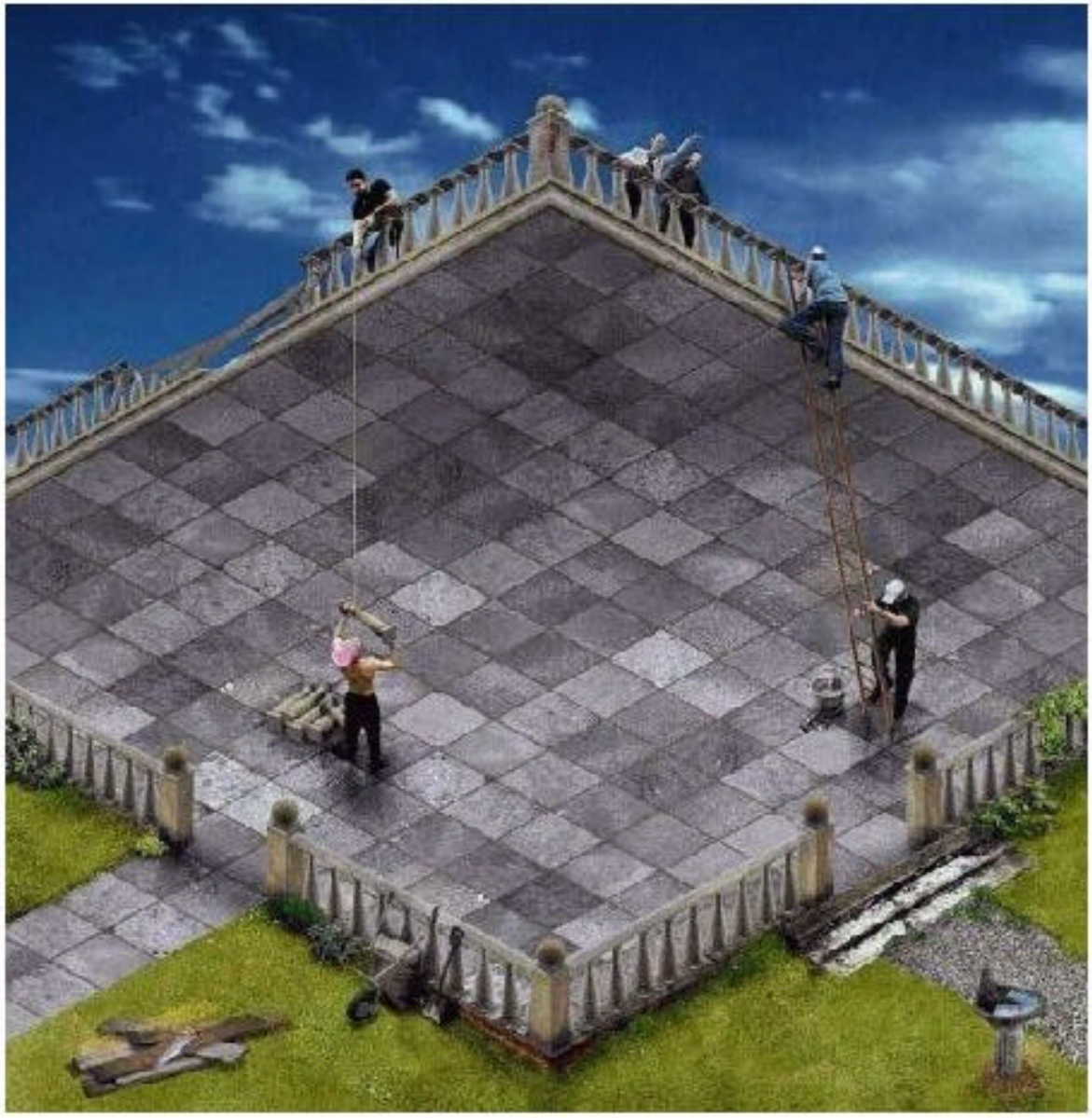
Conclusion



Change

Open Mind
Open Eyes
Open Ears

Customers
Markets
Society