Session 1: Keynote I (Geoff Huston)

Takeaways and Conclusions

- Public Networks no longer carry users' traffic to/from service portals via ISP carriage services. Instead, Private Networks carry content to service portals via CDN services
- Almost all new submarine international cable projects are heavily underwritten by only a few content providers, not carriers
- Internet lacks regulatory framework like telephony.
- The current shift in the Internet architecture is the looming demise of open technologies and open technology standards
- Protocols and solutions more and more closed and, more importantly, proprietary
- Regulation seems skewed towards large Internet players

Suggestions to FG NET2030

- While the challenge is non-technical, considerations for regulatory vs non-regulatory content based on forecast and not on current state could be studied especially as new service offering models.
- Analyze a built-in trustability model that makes users aware of what they are giving up when accessing a particular service.
- Foster development of interoperable & open paradigms at infrastructure protocols that enable accountability (making users—aware of) service-differentiation in provider networks. Think about regulation in the content and service space (universal 'service' regulation beyond just voice!)
- Continue to push for open standards
- Think how standard processes align with innovation timelines

Session 2: Challenges and New Insights

Takeaways and Conclusions

1. IoT will play major role in NW2030 with in-network processing, edge, AI, …
2. IP has evolved but newer developments (e.g., MPLS, SR/NSH) do not address deterministic operations and ultra-high throughput
3. Network measurements need to improve to enable AI-centric operations
4. Separate identifier semantic from routing

Suggestions to FG NET2030

- ❑ human-centric but not just human services will drive requirements
- ❑ Fully re-think the fundamental routing/forwarding functions needed
- ❑ Specific work on network measurements -> knowledge plane?
- ❑ Study future routing

Takeaways and Conclusions

1. Learn from past mistakes
2. Red team employ adversary viewpoints
3. Internet is a commercial service but it did not start as one
4. IPv6 is a real business case due to address scarcity
5. First mover advantage must exist for any ISP deploying

Suggestions to FG NET2030

- Consider IPv6 for NW2030
- Scale is the most important (and only real) problem
- Document the old mistakes?

Session 3: Keynote Session 2 (Fred Baker)

Takeaways and Conclusions

1. Commercial service: Focus on creating new Internet of 2030 as a commercially and operationally viable service; consider service provider networks which mostly have IPv6.
2. Lessons learnt – omit unnecessary complexity and coupling. As researchers, focus beyond technology on features that matter, omit what is not needed in commercial solutions.
3. Old-technology can not be forward-compatible, but new solutions should provide transition from old to new.

Suggestions to FG NET2030

- ❑ Study and validate new technologies proposed in 2030 through critical mindset - by assuming an adversarial point of view to improve their effectiveness and commercial aspects.
- ❑ Analyze through viable scalability, provide flexibility to add new tools when the need becomes clear. New solutions must have a good way to be backward compatible.
- ❑ Incorporate solutions that provide development of two-way mutual security models; assume/utilize IPv6 awareness in next-gen architectures.

Takeaways and Conclusions

1. Human interaction is boundaryless (real-digital, producer-consumer)
2. Everybody is centre of (their own) story
3. Personal experiences stored
4. Higher security through QKD
5. Security is harder since it's all SW
6. Cognition is key for future networks
    1. Applications for joint front/backhaul
    2. CrowdRAN

Suggestions to FG NET2030

- ❑ interactions between human and machines
  -> requirements, concerns
- ❑ Data privacy concerns through interactions
- ❑ SW security
- ❑ AI/ML-based network management

Takeaways and Conclusions

1. Balance between ICT and economic/social issues is required.
2. Network needs to improve based on technology trends.
3. Network architecture needs to satisfy future requirements.
4. Network processing is moving toward the edges

Suggestions to FG NET2030

- ❑Consider economic and social issues in order to reduce entry barriers
- ❑Consider the need to reduce the cost of development, deployment, operation and management
- ❑The concepts of requirements, intelligence and data should be included in the network
- ❑.Consider redefining the line between management and control
- ❑Optimized architecture will be required for edge computing/communications