

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



Takeaways and Conclusions

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

- Learn from past mistakes
- Red team employ adversary viewpoints
- Internet is a commercial service but it did not start as one
- IPv6 is a real business case due to address scarcity
- 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?



Takeaways and Conclusions

- ❑ Commercial service: Focus on creating new Internet of 2030 as a commercially and operationally viable service; consider service provider networks which mostly have IPv6.
- ❑ Lessons learnt – omit unnecessary complexity and coupling. As researchers, focus beyond technology on features that matter, omit what is not needed in commercial solutions.
- ❑ 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

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

- Balance between ICT and economic/social issues is required.
- Network needs to improve based on technology trends.
- Network architecture needs to satisfy future requirements.
- 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

