



GENI Optical Workshop: **Summary from** **a Networking Perspective**

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Summary (Networking Perspective)...



- Tom Koch:
 - PICs → high-density switches
 - power-aware networking/computing
 - self-configurable interfaces (?)
- Franko Kueppers:
 - (critical-services)-driven architectures
 - resilience (cross-layer protection)
 - power efficiency (cost)
 - guaranteed data integrity
 - drivers (IPTV, FTTX, w/l, $\geq 100\text{G}$)
 - real-world networks are “multi-domain”
 - carrier Ethernet
 - customer-controlled “pipes”
 - optical multicast support
- Ruth Ann Mullen:
 - hierarchical network topologies, meshes, ...
 - power, cost, photonic integration, survivability, events, multicast support, pay-as-you-grow,
 - network engineering, ...

Summary (Networking Perspective)...



- Keren Bergman:
 - cross-layer (CL) design
 - “dual role” of optics
 - hybrid arch (dynamic ckt s/w + optical pkt s/w + broadcast)
 - manage QoS
 - security, survivability, multi-path routing, CL TE,
- Stojan Radic:
 - optical edge architecture
 - FTTX, ...
 - unprotected to protected arch.
 - service-oriented arch.
 - extended reach PON
 - wireless support
 - multicast, amplify, and select

Optical Networks: The Road Ahead



Broadband Access

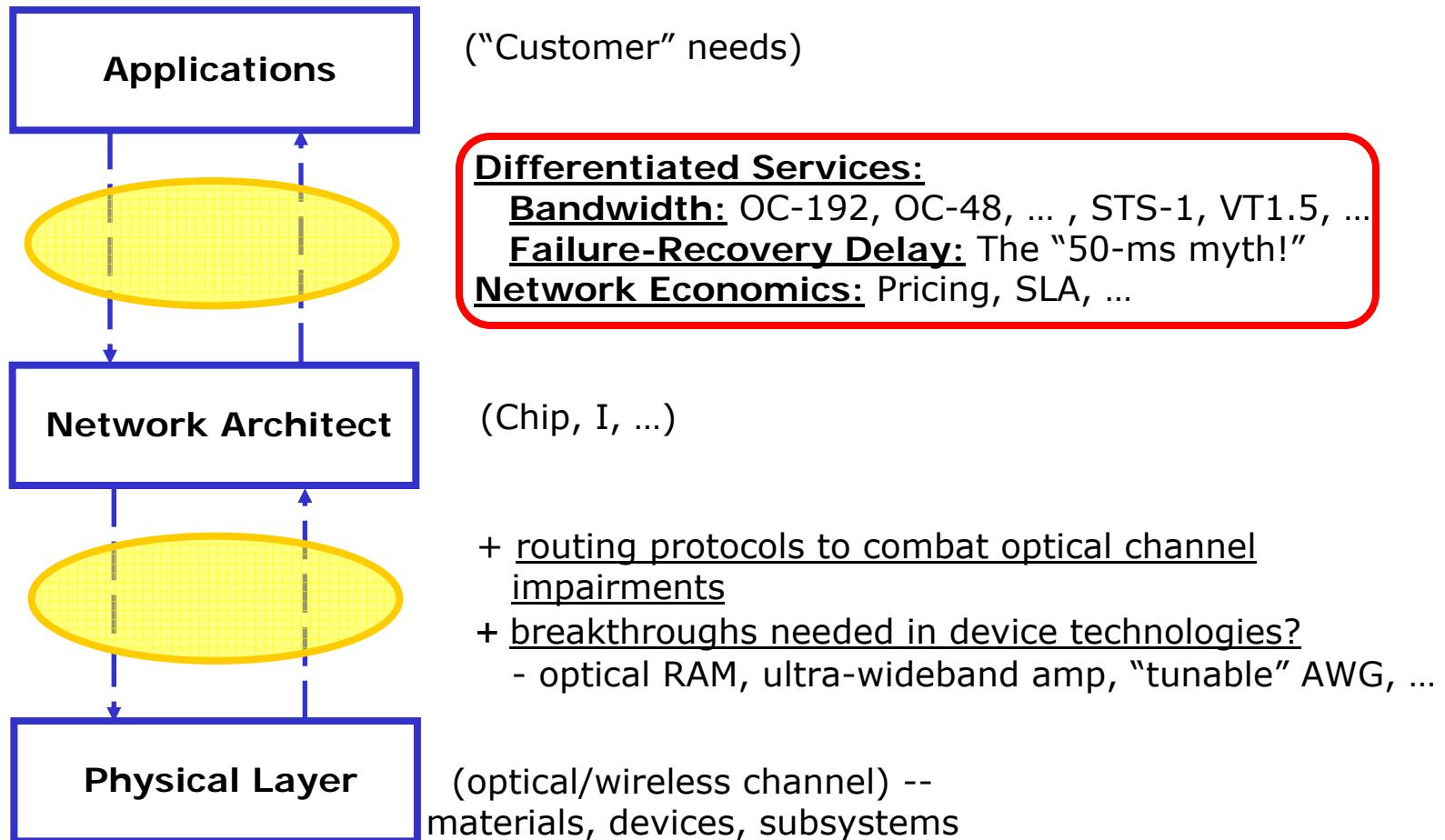
- (X) PONs
 - WDM in PONs
 - Long-Reach Broadband Access
 - Hybrid wireless-optical access
- (X) Metro: The vanishing breed?

Backbone Networks

- DOCS ("dial for bandwidth")
- (X) Robust Network Design (multi-layer, multi-domain, multi-path, etc.)
- Ethernet Everywhere (e2e)

- (X) Network Engineering (NE) (vs. TE vs. NP)
- (X) Higher-density switches!

Optical Networking: Holistic Approach





Telecom Nets: "End-to-End" Ethernet?

