NEXT GENERATION INFRASTRUCTURE

Update on automation efforts to date.
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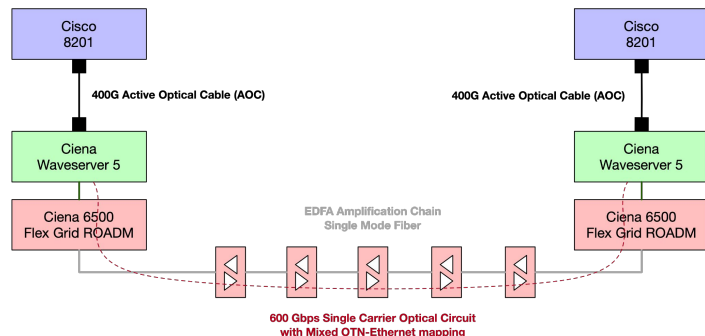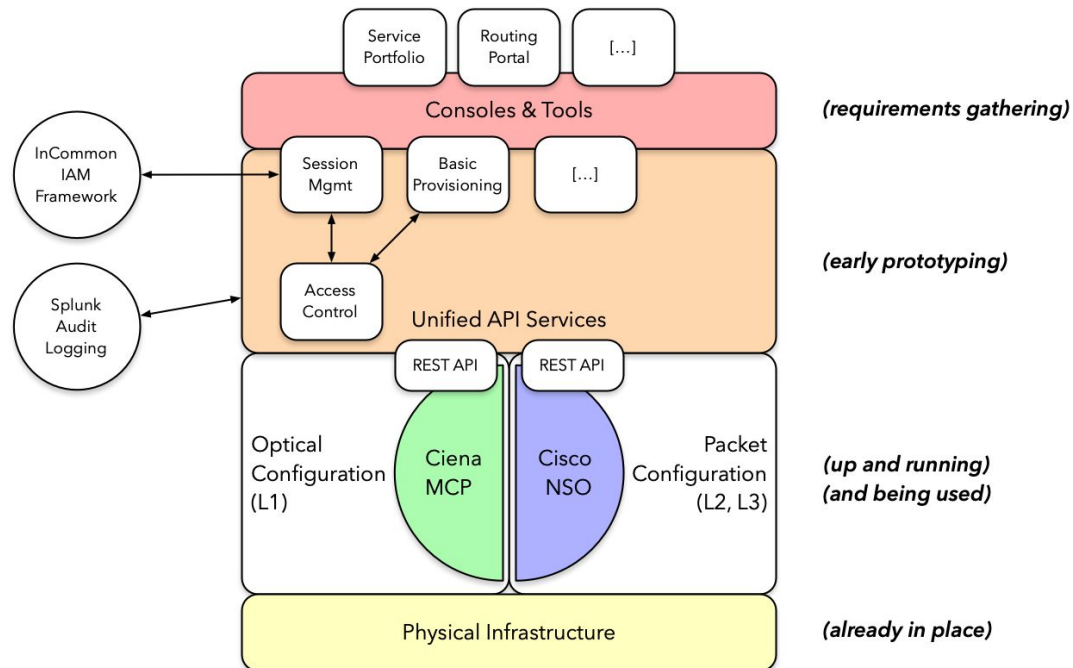# Internet2 Next Generation Infrastructure: Overview.

- Complete refresh of the Internet2 network.

- Optical layer based on Ciena 6500 flex grid ROADM and Waveserver 5 interconnects.
- Packet layer based on Cisco 8201/8202 routers.
- Security improvements, e.g. OOB Secure Management Network.
- New software automation and orchestration functionality.
- New business services model.
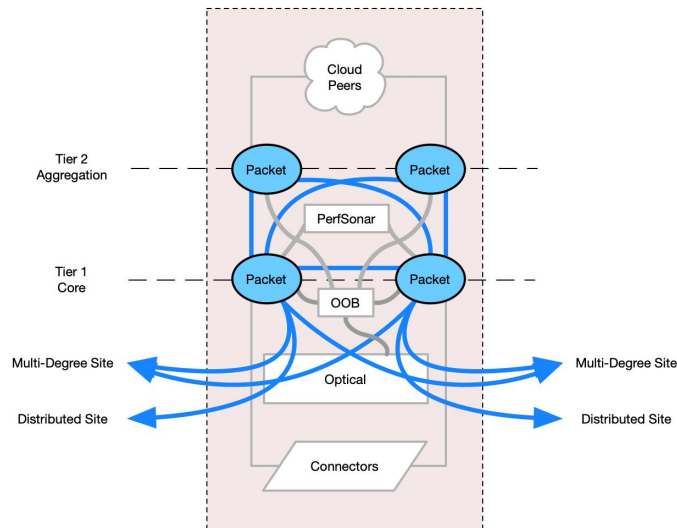
Internet2 Next Generation Infrastructure: Software Architecture.

- NGI physical infrastructure is already in place. Remediations in progress, but substantially complete.

- Ciena MCP in production and being used by engineers to manage optical layer.
- Cisco NSO in production and being used by engineers to manage packet layer.

- Both products offer REST APIs.
- Currently in early prototyping for a locally-developed unified API service layer.
- Will tie to InCommon IAM framework for SSO and ABAC.
- Will tie to existing Splunk cluster for audit log aggregation/analysis/alerting.

- Beginning early requirements gathering for consumers of the unified API layer.
- Possible work this Fall:
    – Unified (L1/2/3) service portfolio display.
    – Routing portal (w/Security team).

Internet2 Next Generation Infrastructure: High-Level Timeline

Schedule	Project Deliverable
Completed	Optical program: Lumen single mode fiber + Ciena 6500 amps and ROADMs + Ciena MCP
Completed	Packet program: Cisco 8200 packet + Ciena Waveserver 5 transponders + perfSONAR + Secure Management Network + Cisco NSO
Completed	Cisco software delivered for routers (go/no go decision)
Completed	Backbone creation and operational testing
In Progress	Shim insertions to bring network connectors inline
Aug - Sep	Service migrations
Sep - Dec	Legacy network decommissioning and removal
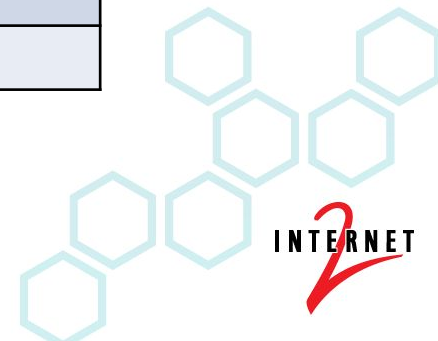
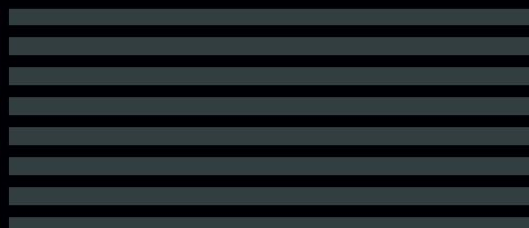# NEXT GENERATION INFRASTRUCTURE

Questions/clarifications:

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