canarie
Canada's Advanced Research and Innovation Network
Le réseau évolué de recherche et d'innovation du Canada

CANARIE UPDATE
and
Next Generation GOLE

GLIF Meeting
Geneva, Switzerland
- from Ottawa Canada -
October 14, 2010

Eric Bernier, CANARIE
Eric.Bernier@canarie.ca

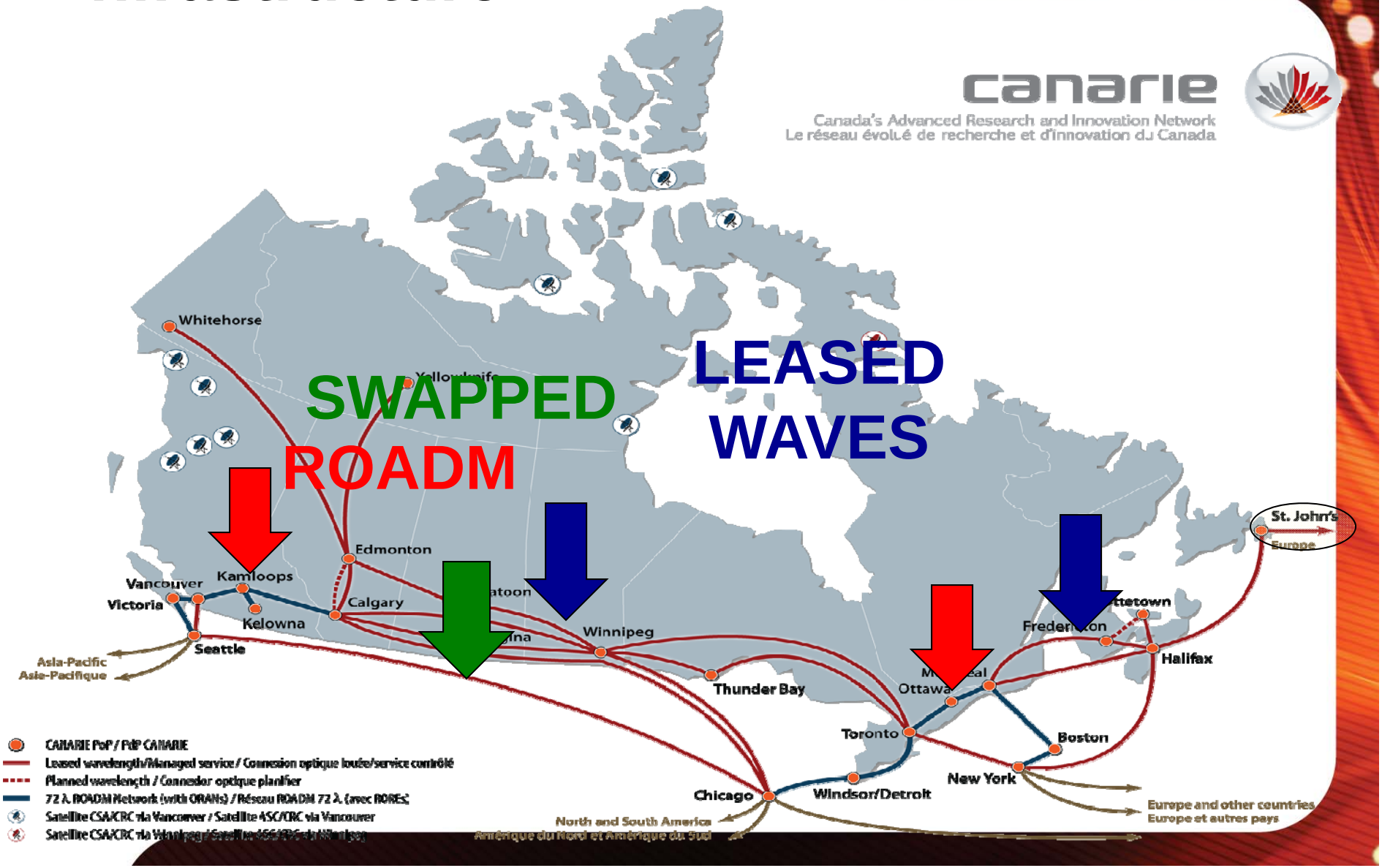
Agenda

- Extension to CANARIE Services
- CANARIE Network Infrastructure
- 100G Demonstration
- New GOLE Equipment (Seattle and Chicago)

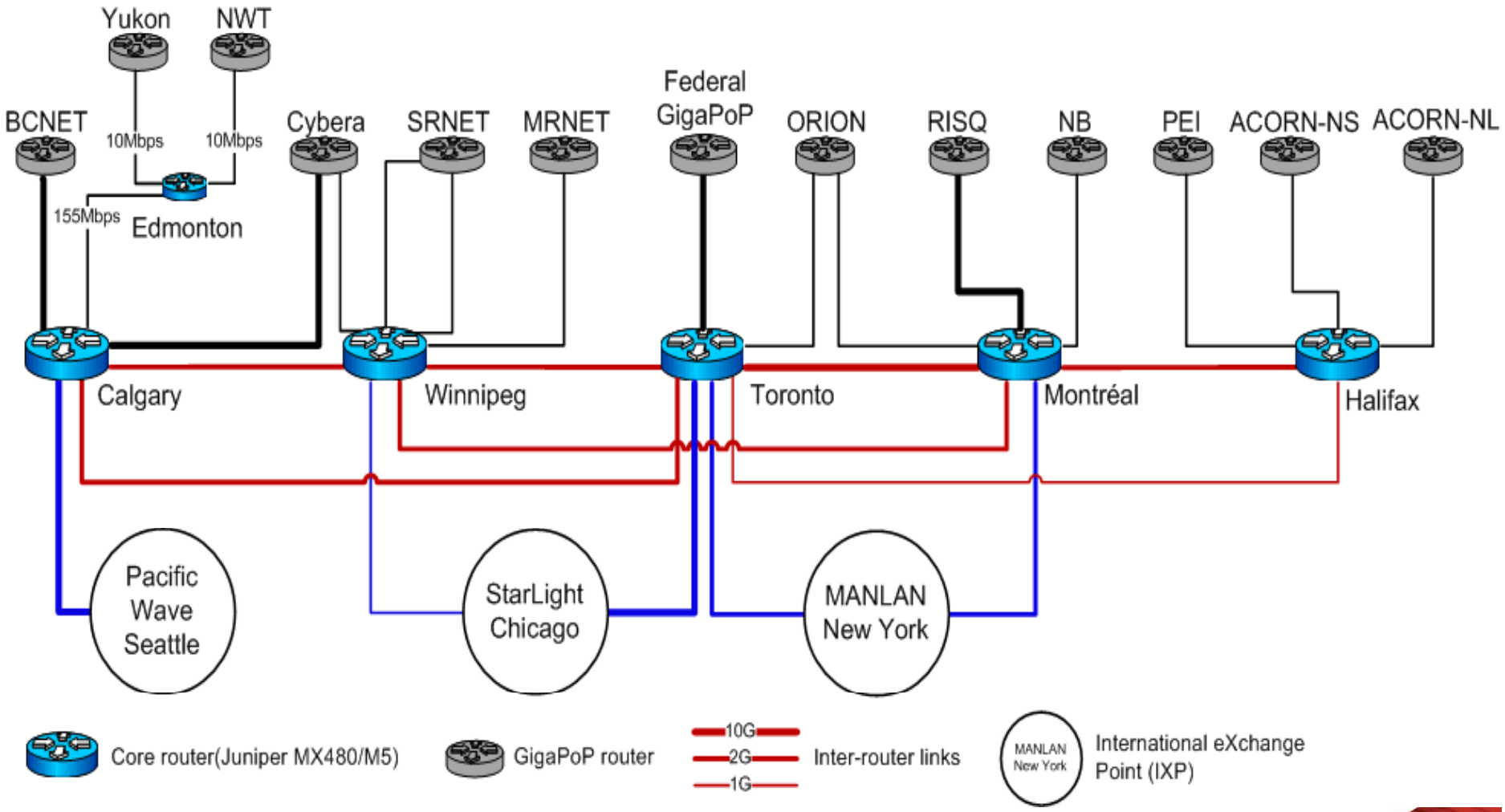
Extension to the CANARIE Services

- Current Network Services:
  - R&E IP Networking, IPv4, IPv6 Unicast and multicast
  - Lightpath Service. (Manually configured)
- Services being extended:
  - IPv6: Offering transit over the CANARIE Network
  - Settlement Free Peering – Planning Phase
    - Peers with content providers directly and through Internet Exchange Points,
    - Content providers, such as Google, Amazon.
  - Fibre Footprint: Planning to extend the CANARIE ROADM footprint beyond the Eastern and Western ROADM

CANARIE Network Infrastructure



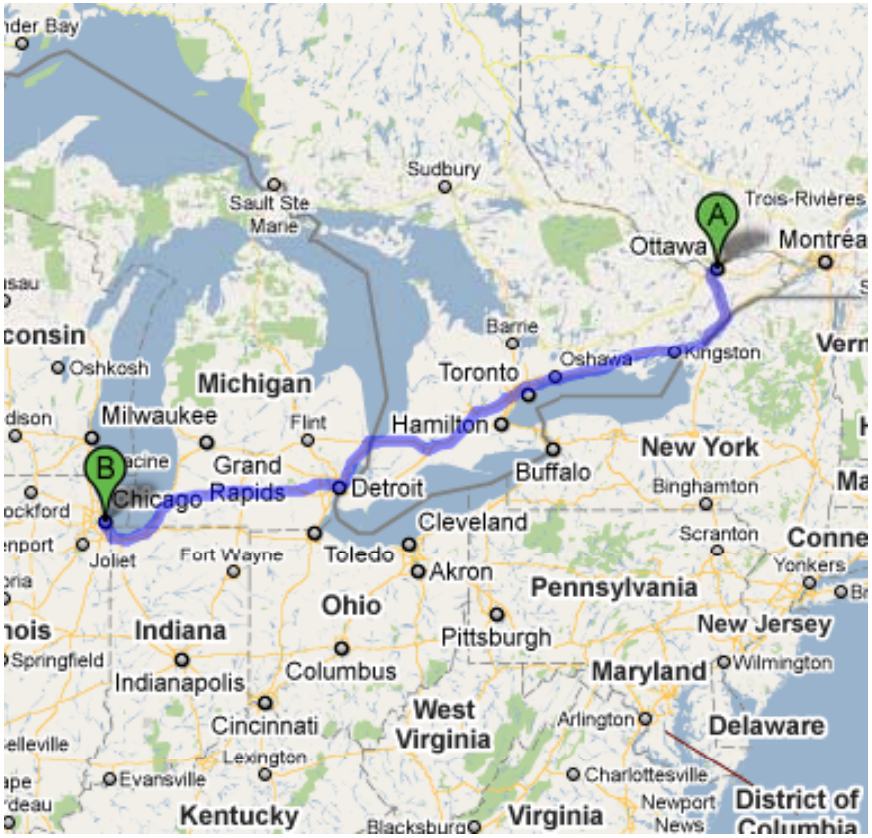
IP Network Interconnections



- North American First –

100G Demonstration on the CANARIE Network

Ottawa to Chicago 100G

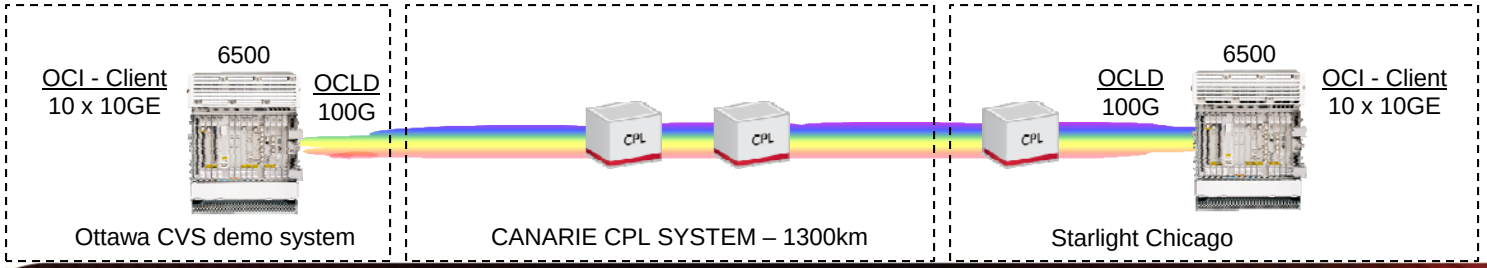


Ottawa – Chicago

- CANARIE CPL / 6500 1300km

Ciena 100G Adaptive Engine

- Volume deployable high capacity solutions
- Improved spectral efficiency with more bits per symbol
- Retain Superior Performance and Agility Characteristics of Existing 10G Systems
- Plug and Play solutions leverage existing infrastructure and investment



Application – 100G

Ability to show simultaneous data-flows sourced from major collaborators.

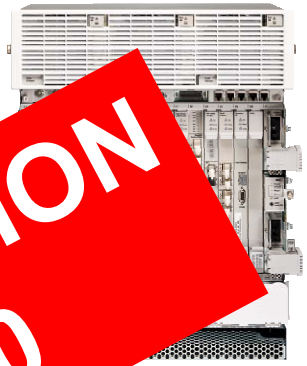
- -iCare
- -NCDM
- -NASA

} Data Intensive

- -CBrain / Gbrain
- -HSVO

} Visualisation Applications

MEN LAB 10 Tile DIsplay



OFFICIAL DEMONSTATION
OCTOBER 18, 2010

Chicago

STARLIGHT

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Western

UNIVERSITY OF TORONTO

ARC·CNRC

UBC

Montreal

Canadian Brain Imaging Network
CBRAIN portal & Metadata

New GOLE Equipment

The Issue

- HDXc
- Manufacture discontinue effective date: June [illegible]09.

PHASED OUT
Replaces by OME6500 32 slot

Problems:

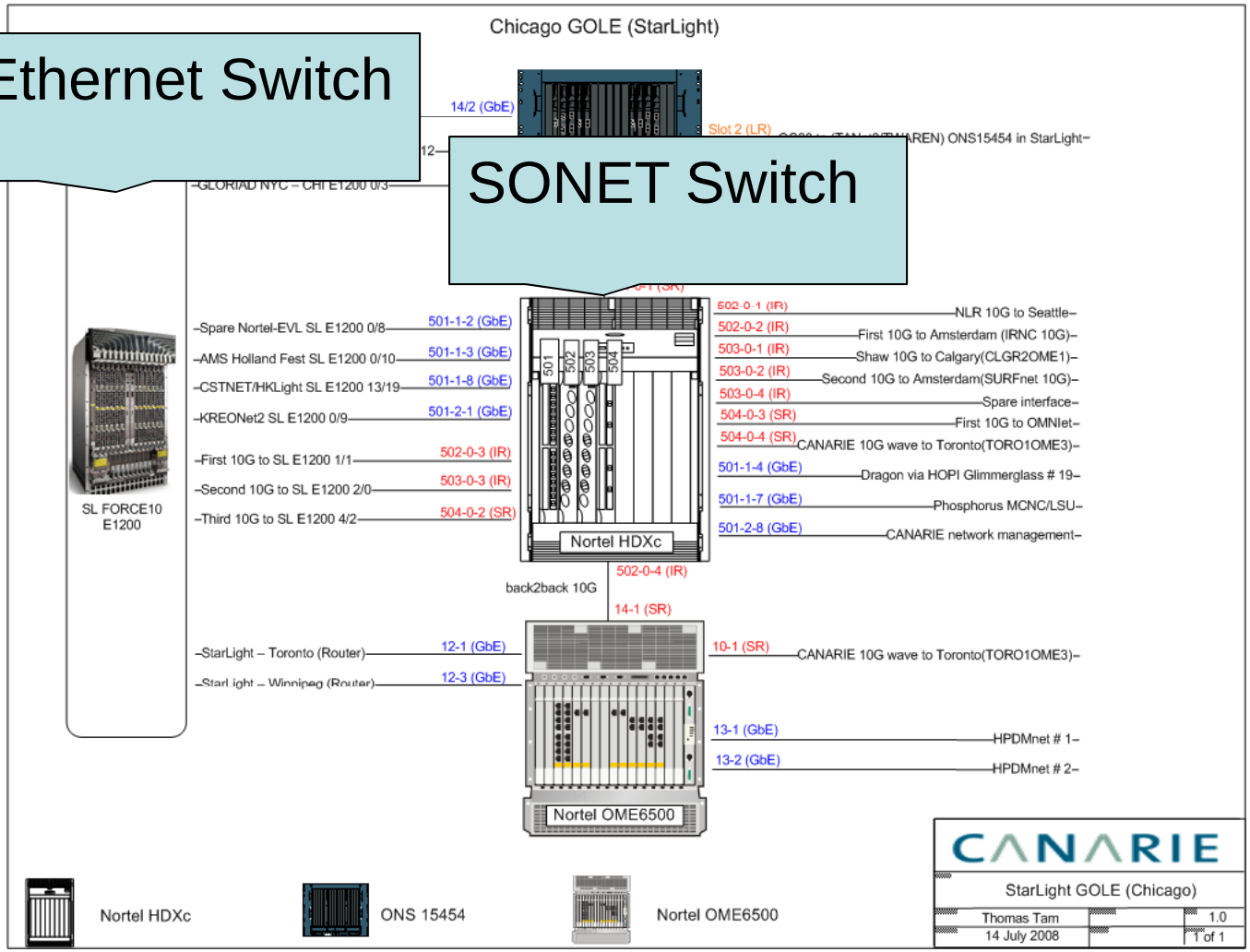
1.Expan[illegible]
2.E[illegible]orizon

[illegible]ecture and feature definition
[illegible]nance for the GOLE refresh
3.Replacement timeline
4.Equipment and platform

Opportunities:

1.Modern reference GOLE Architecture (L0-L2)

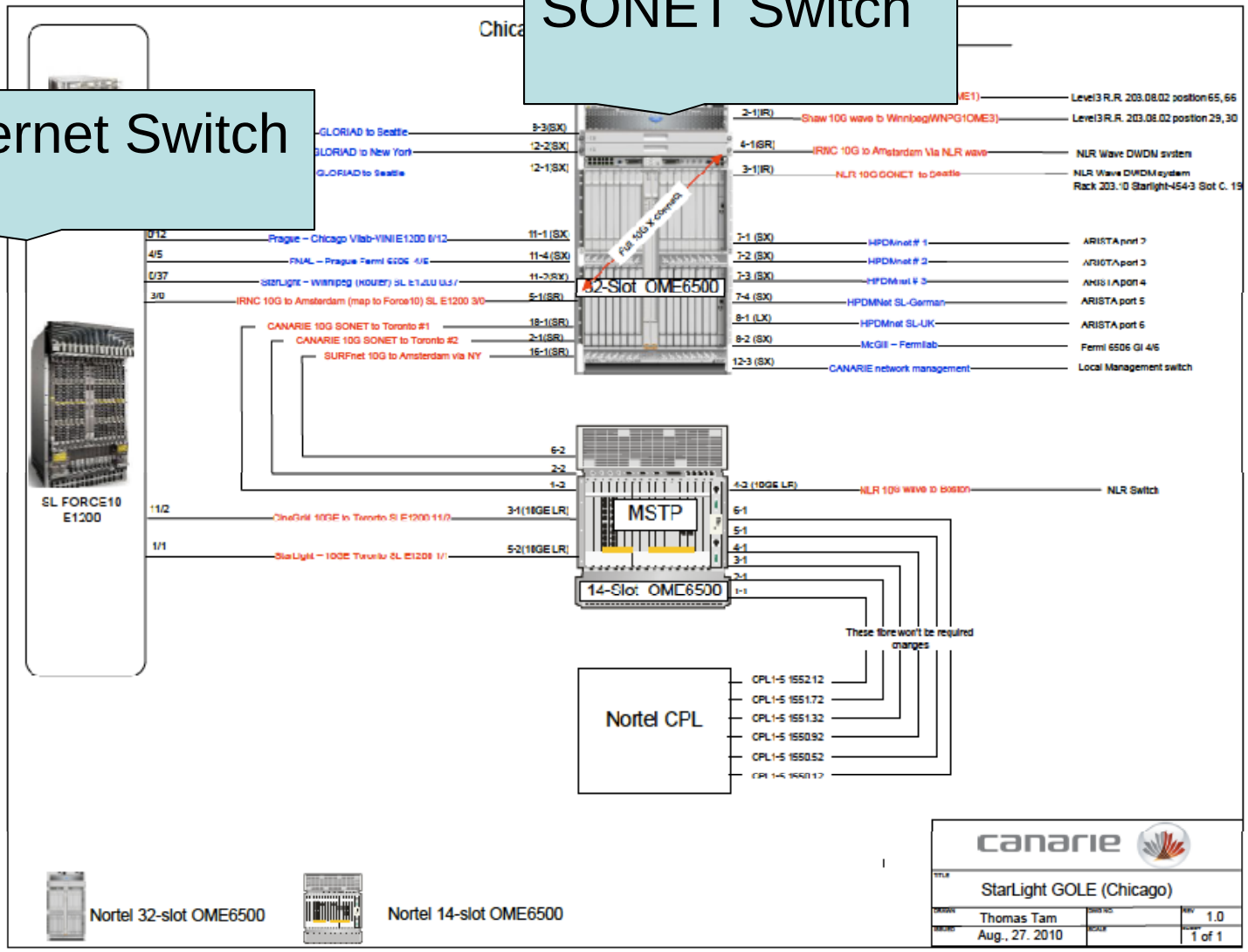
Chicago GOLE
OLD Design



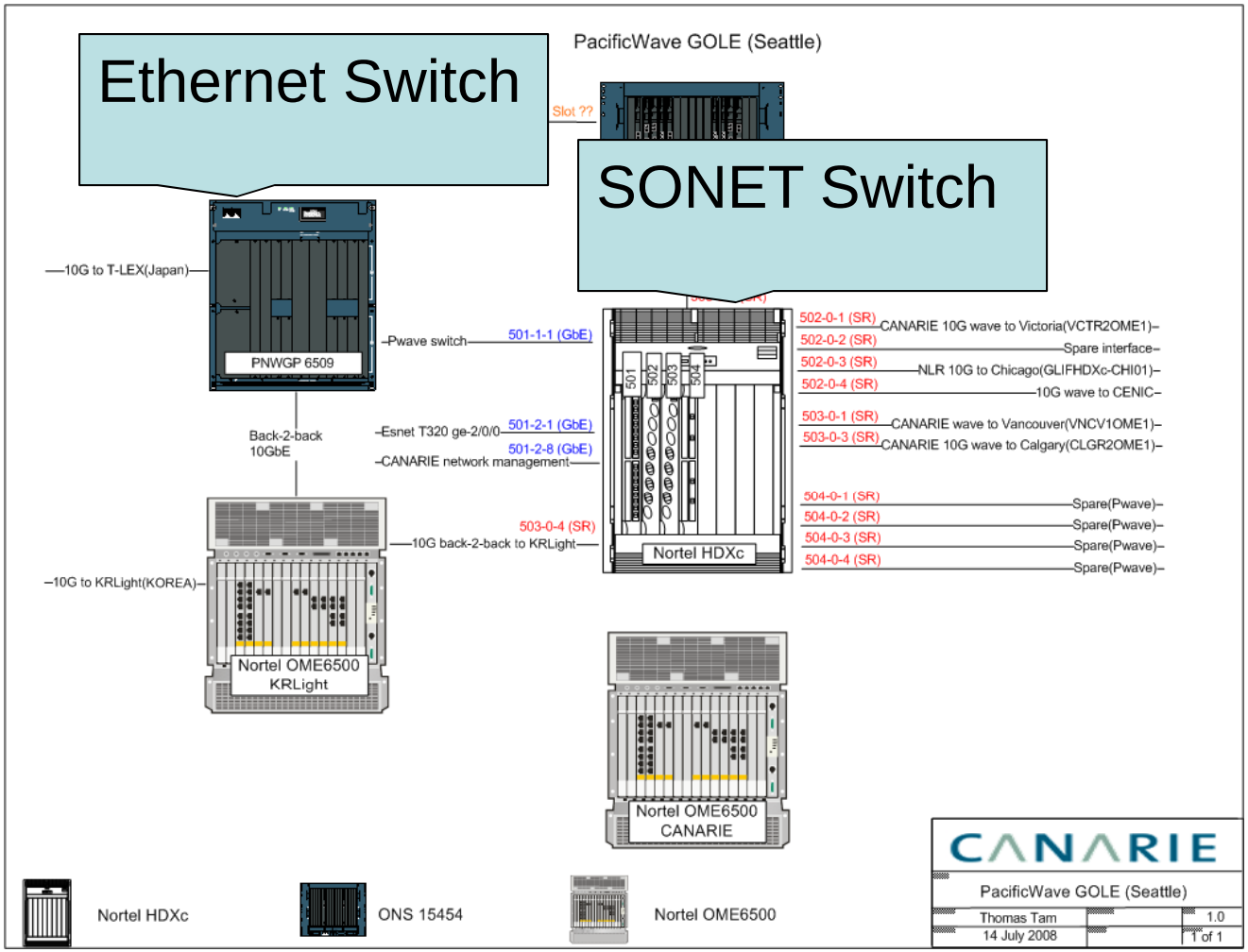
Chicago GOLE NEW Design

SONET Switch

Ethernet Switch

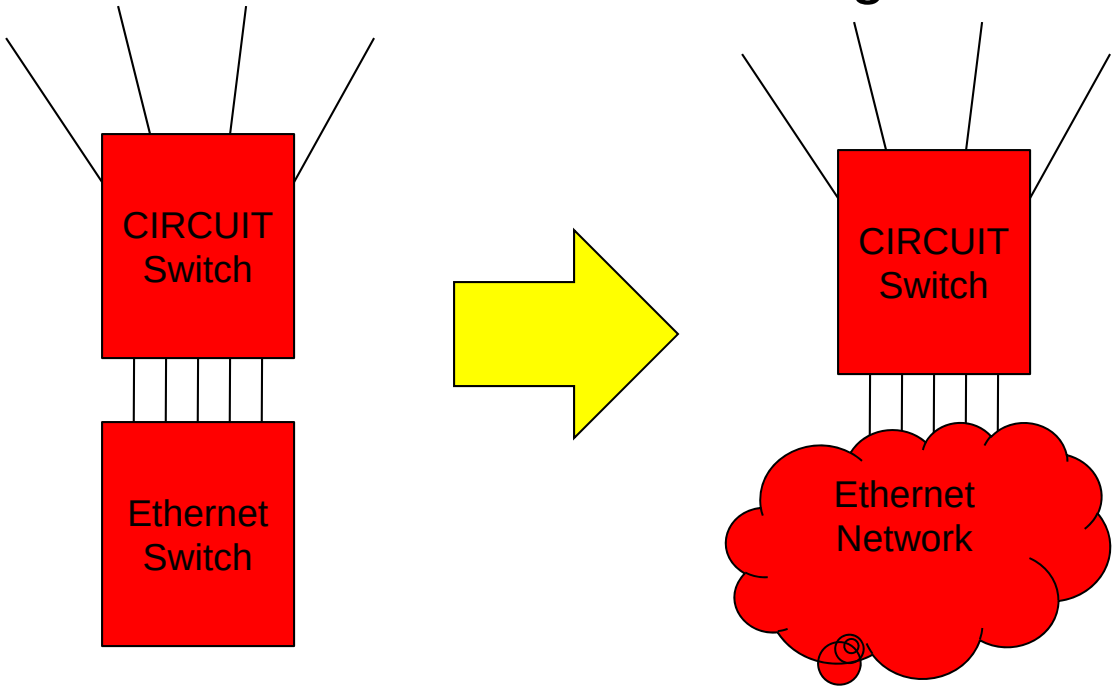


Seattle GOLE Design



New Disruption

1. Network Transition to Carrier Ethernet
2. NEW IRNC award
3. Agreements to Global Network Design



CANARIE Timeframe
2013-2014

BACKUP

Objectives

The Next Generation GOLE Taskforce will develop the future requirements and reference architecture for GOLE.

WHY?

1.Creating a blueprint will facilitate equipment replacement at GOLE

2.The blueprint will help framing what are the functions that are fundamental for a GOLE and which are optional.

Question to Answer

- What is the architecture of GOLES today?
- What works well in creating connections?
- What does not work well connecting?
- What are the functions of the FUTURE GOLE?
- What services are common to every GOLE?
- What service are relevant for future GOLE?
- Where do GOLE evolve in the future?
- Is there a way to simplify GOLE and operations?
- What are the impact of the change in emphasis from SONET centric to Ethernet centric?