Thinking beyond 100 Gbps

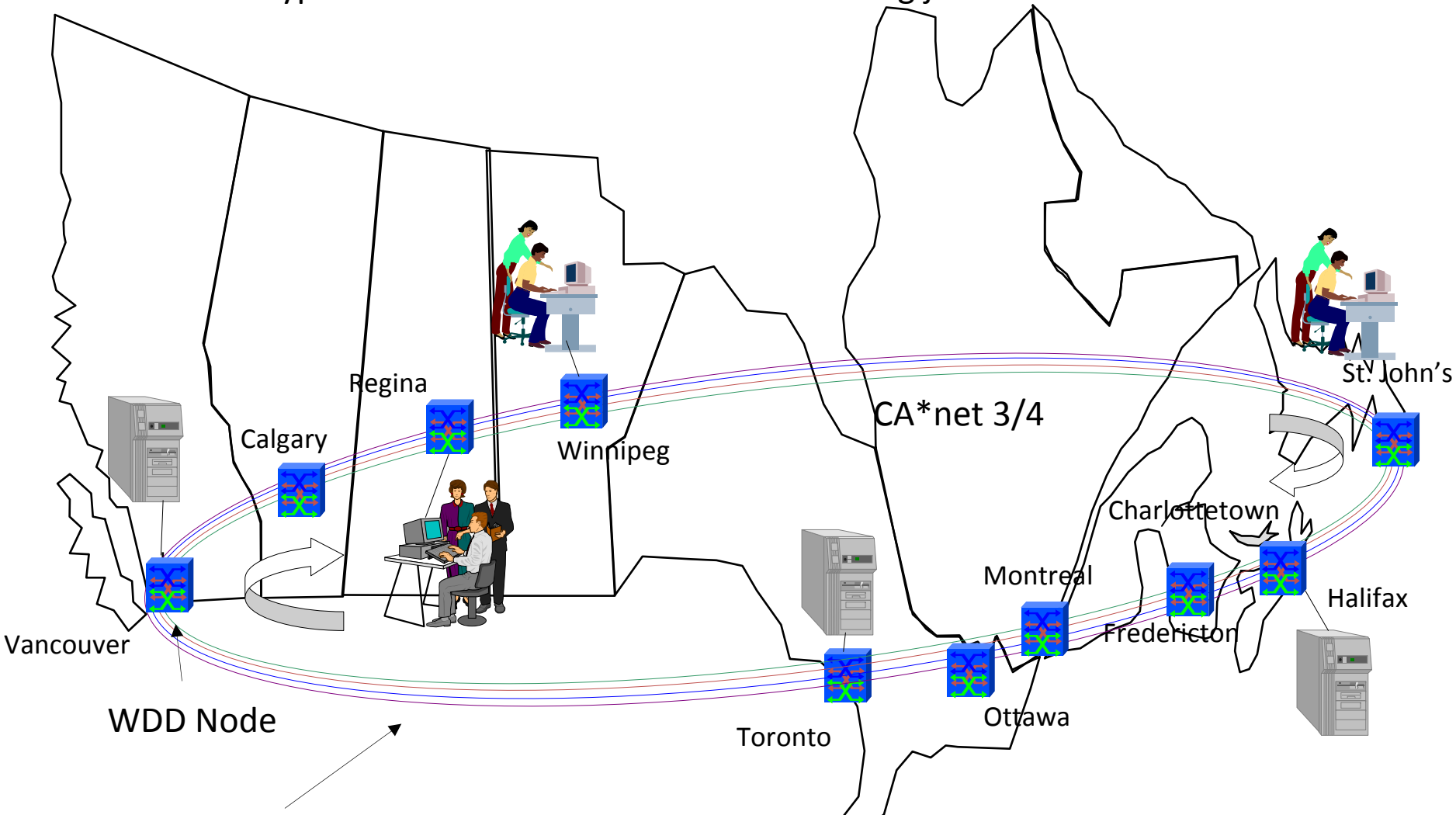
- 100 Gbps is already dead
- In labs 1000 Gbps per wavelength over 1200 km is possible
- But no market from commercial carriers who are still trapped in mindset that bandwidth is a limited resource
- New encoding technology will dramatically increase capacity
- Polarization and Orbital Angular Momentum ("Twisted Light") will increase bandwidth 100 - 1000 fold – Terabit per wavelength

Consequences

- Building NIC cards for Terabits per wavelength likely impossible
- If R&E networks want higher bandwidth they will need to build their own optical drivers and techniques for extracting subchannels in DWDM
- Average utilization of networks continues to decline and IP Traffic growth slowing
- Do we still need lightpath switching if we have essentially unlimited bandwidth?
- Do we need end to end networks when space-time storage capacity of DWDM network is much much greater than physical storage at ends?

Wavelength Disk Drives

Prototype demonstrated in 2001 for distributing jobs between Cloud nodes



Computer data continuously circulates around the WDD

http://www.viagenie.qc.ca/en/obgp_wdd/wdd/canarie_workshop-wdd-20011129.pdf