

TransLight

A global-scale LambdaGrid for e-science

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Note: The paper is written by e-scientists in 2003

Problem

- We generate too much scientific data to send over the internet.
- Some data has to be sent over a network, but best-effort networks don't fit the needs.



What is TransLight?

1. **Subtitle** - A global-scale LambdaGrid for e-science.
2. **Computer scientist** - A global switched optical (bypass) network for scientific communities.
3. **Layman's term** - Fiber internet for scientists.

Goal

- Serve e-scientists with a network that has known characteristics.
- Complement best-effort networks. Not replace them!
- Get enough government and private funds to build this. =>

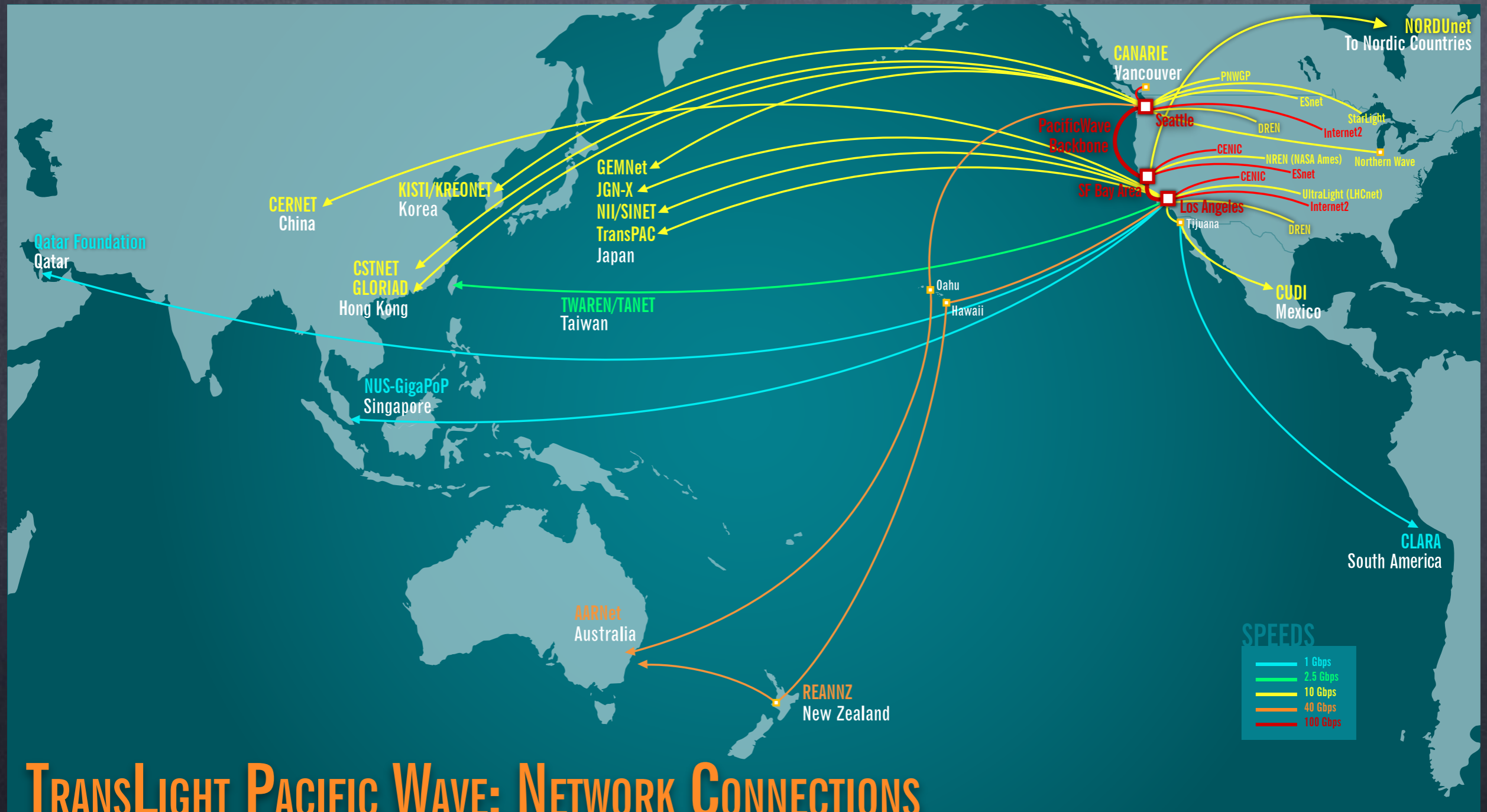
Design

- Simplified network that is designed for end-to-end connections.
- Only available for scheduled use to ensure certain characteristics.

Users

- **Class A** - Lightweight application
Requires routing
- **Class B** - Business application
Requires routing
- **Class C** - Scientific application
Ideal group!

Now



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Future

- **Scalability** - The protocol stack (TCP/IP) is the biggest bottleneck.
- **Latency** - We need a new carrier if we want to keep improving.
- **Bandwidth** - Will probably keep on doubling every 2 years.

Discussion

- Is the current best-effort internet solution sustainable?
- Are bypass networks with known characteristics the future?

Thanks for
listening

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