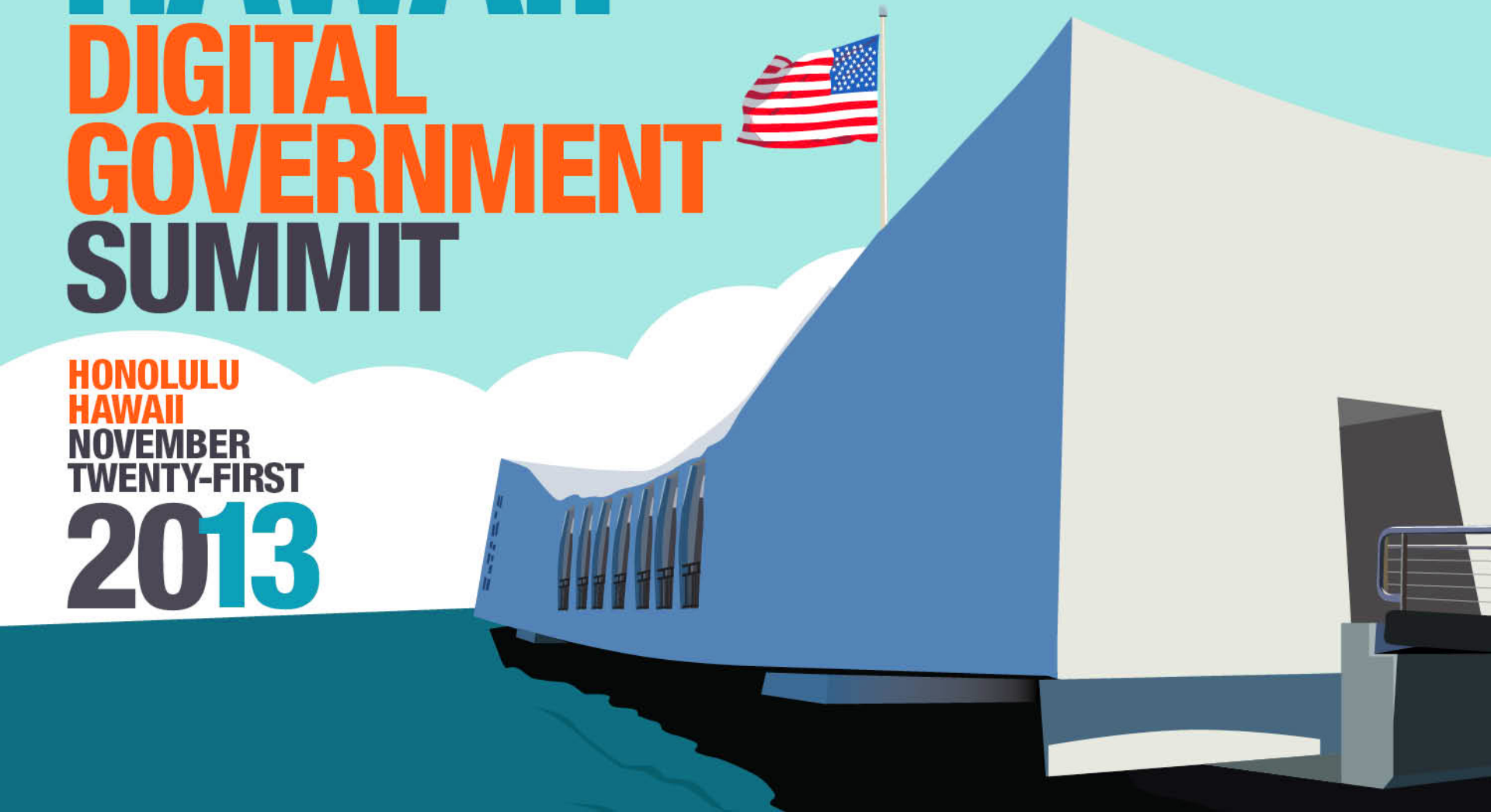
GOVERNMENT TECHNOLOGY®

HAWAII DIGITAL GOVERNMENT SUMMIT

HONOLULU
HAWAII
NOVEMBER
TWENTY-FIRST
2013



- **T4: Connecting Hawaii to the World: Broadband**
- **"Broadband is Critical Infrastructure for an Innovation Economy"**
  - Creating diverse and resilient transpacific and inter-island fiber optic pathways
  - Supporting Continuity of Government Services
- **State Transformation Plan**
  - Technology Modernization Track
    - Hawaii Broadband Initiative (HBI)

- **Session Focus**

  - The Hawaii Broadband Initiative (HBI) is a transformative series of projects designed to modernize how citizens and government organizations communicate. With the advent of the federal government's plan to build FirstNet, a nationwide high-speed network for first responders, the role of broadband has become even more of a priority for Hawaii. This session will provide the latest news from the HBI, including current and pending projects designed to improve communications both between the islands and the rest of the world.

- **Agenda**
  - Presentations by Panelists
  - Facilitated Q & A

Betty Yrizarry - IT Specialist, Information and Communication Services Division, Department of Accounting and General Services, State of Hawaii

Kevin Paul - Senior Vice President - Technology, Hawaiian Telcom

Donn Yabusaki - IT Manager, Department of Commerce and Consumer Affairs, State of Hawaii

Keone Kali - Deputy Chief Information Officer - Operations, State of Hawaii

Goal of Hawaii Broadband Task Force (HBTF)

The Hawaii State Legislature created the HBTF in 2007 to provide recommendations on how to advance broadband within the State of Hawaii. The Task Force's Final Report published in 2008 reinforced that broadband services were vital to Hawaii's advancement and that broadband was considered to be critical infrastructure serving Hawaii's socio-economic prosperity in the 21st century. The 2008 Final Report stated four (4) high-level recommendations:

1. *Establish an aggressive and forward-looking vision that positions the State for global competitiveness.*
2. *Consolidate all relevant regulatory and permitting responsibilities in a new, one-stop, broadband advancement authority that promotes Hawaii's policy objectives and provides advocacy at all levels of government.*
3. *Aggressively promote the landing of new trans-Pacific submarine fiber in Hawaii, including a shared access cable station that reduces barriers to fiber landing in Hawaii.*
4. *Have government lead by example in demonstrating the value of broadband to our citizenry, deploying broadband services to the public, and ensuring that we do not leave behind the economically disadvantaged members of our communities who may be inhibited from full participation in the 21st century.*

Goal of Hawaii Broadband Initiative (HBI)

On August 23, 2011 Governor Neil Abercrombie launched the HBI with the goal of providing affordable, ultra high-speed Internet access for all of Hawaii's citizens. The HBI has four (4) primary goals:

1. *Ensure ubiquitous access to world-class gigabit-per-second broadband service at affordable prices throughout Hawaii.*
2. *Increase the use of ultra high-speed broadband services and applications for economic development, healthcare, education, public safety, governmental efficiency and civic engagement.*
3. *Reduce Hawaii's barriers to global participation and ensure equitable access for all our islands, including the most remote areas of the State.*
4. *Develop and implement a modern regulatory and permitting environment that supports and advances investment in broadband infrastructure and public services.*

What is HBI?

1. Transpacific submarine fiber optic cable (backhaul)
2. Inter-island submarine fiber optic cable (middle-mile)
3. Terrestrial fixed infrastructure (middle-mile and last-mile)
   a. POTS, Copper
   b. COAX
   c. Fiber
4. Wireless and Mobile infrastructure
   a. Microwave
   b. Wi-Max
   c. 3G, 4G LTE
5. **Programs** including economic development, healthcare, education, public safety, governmental efficiency and civic engagement, etc.

HBI is an Ecosystem of Policy, Investment, Partnerships Programs and Technology

HBI is a monumental challenge with the most aggressive speed agenda in the country.

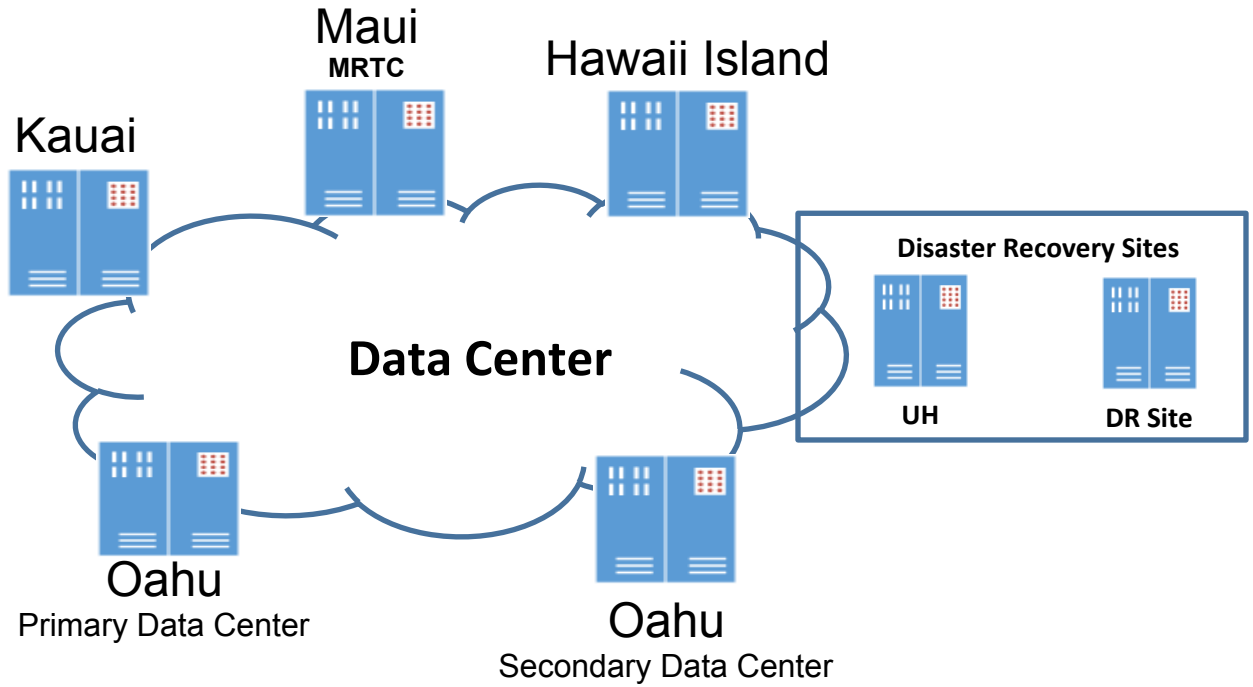
Consolidated Infrastructure

Data Centers

10Gbps Backbone Network

Internet Services

OIMT Data Center Strategy



Legacy Network\Data Center

Legacy Network Center

Long Range Migration Strategy

Switched Ethernet (EIPDS)

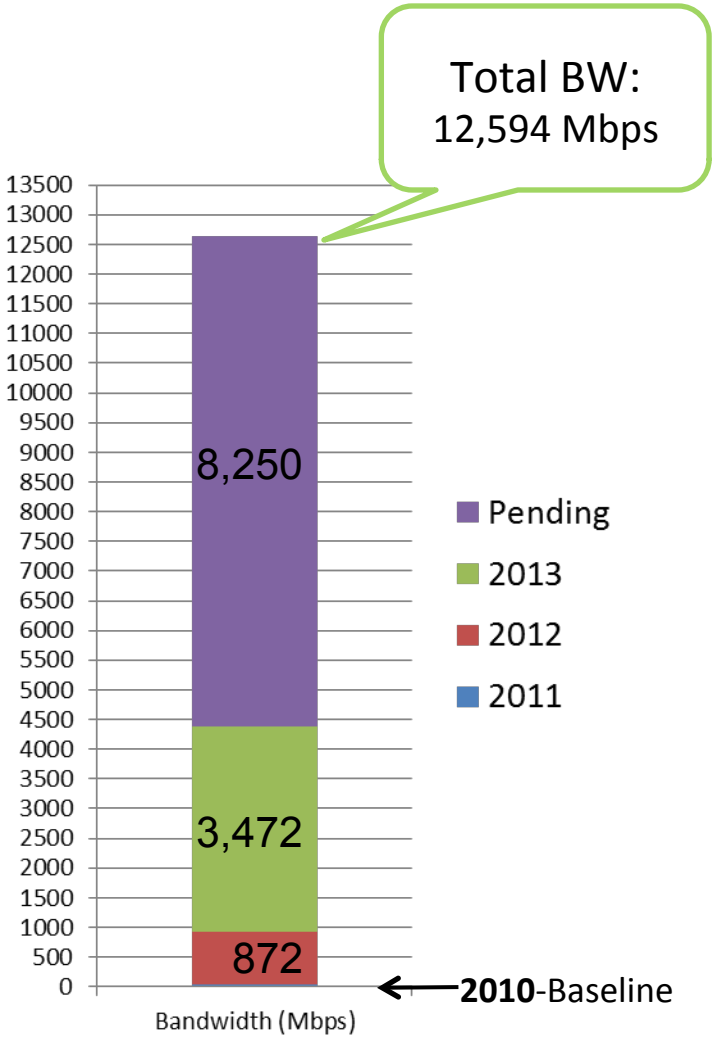
Statewide Back Up

RESULTS

- Developed Statewide Back Up to SoH INET
- Connects existing Data Centers and State Office Buildings

BENEFITS

- **Availability**: Highest availability via MPLS technology
- **Reliability:** Hawaiian Telcom's SLO: 99.99% vs. State's SLO: 99.9%
- **Scalability**: Provides incremental growth via Ethernet
- **Affordability**: MegaBit Per Second prices get lower as the circuit size increases



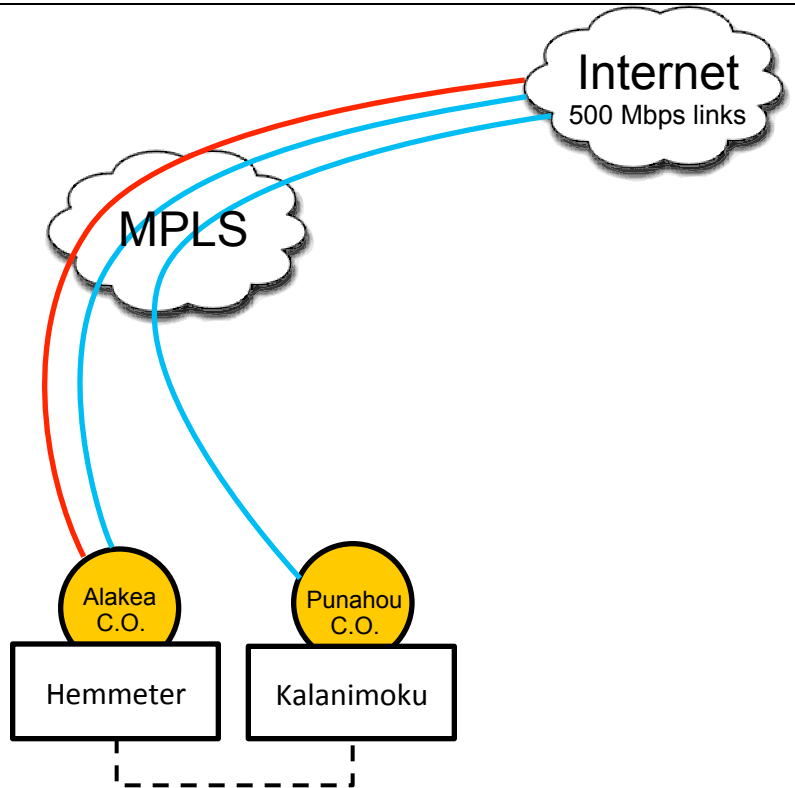
Dedicated Internet Access

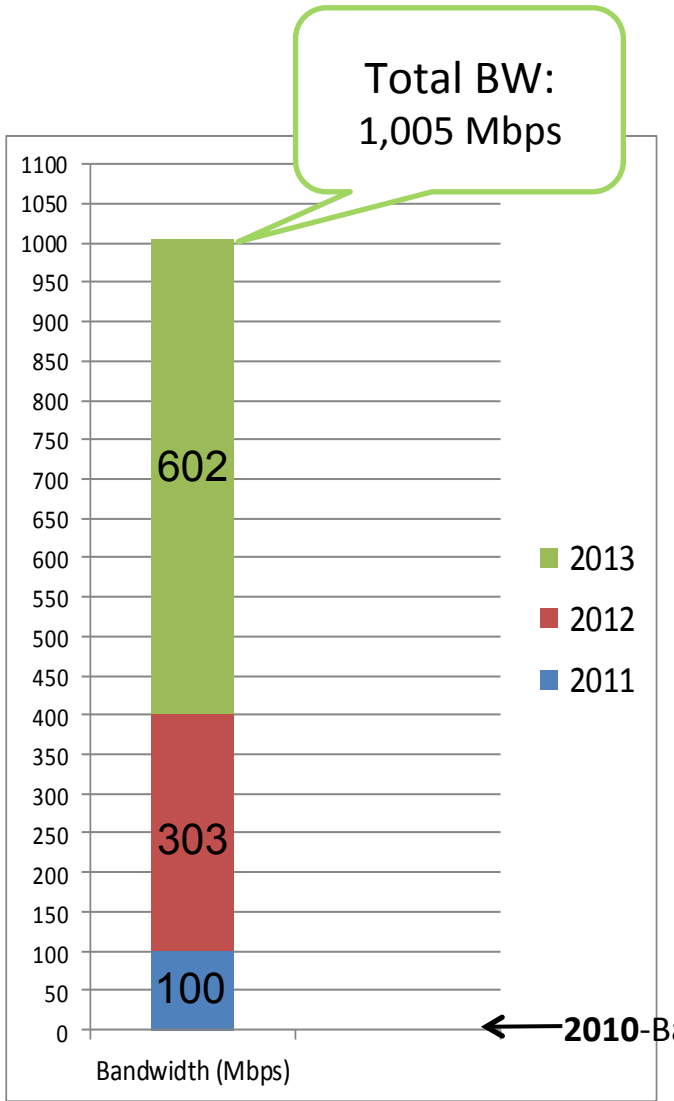
RESULTS

- Migrated from one stand alone circuit to multiple circuits
- Lowers overall network costs to the SoH
- Increases performance and redundancy

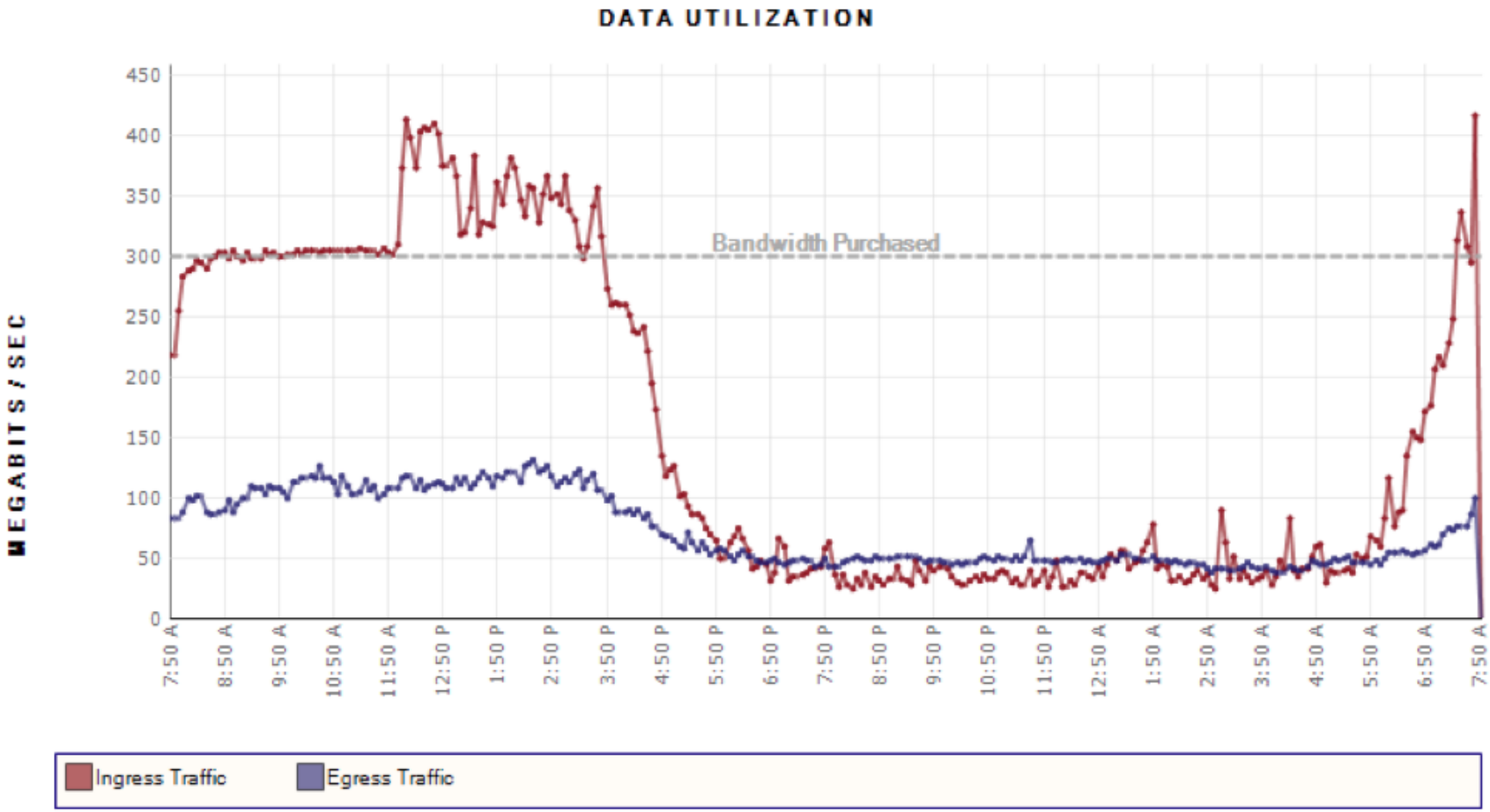
BENEFITS

- **Availability**: Highest availability via MPLS technology
- **Reliability**: Designed with off island redundancy;
  BGP failover configurations to be developed to ensure availability
  Hawaiian Telcom SLA: 99.97% vs. State SLA: 99.9%
- **Scalability**: Provides incremental growth via Ethernet
- **Affordability**: MegaBit Per Second prices get lower as the circuit size increases





Current Internet Bandwidth Utilization 300Mbps - 500Mbps



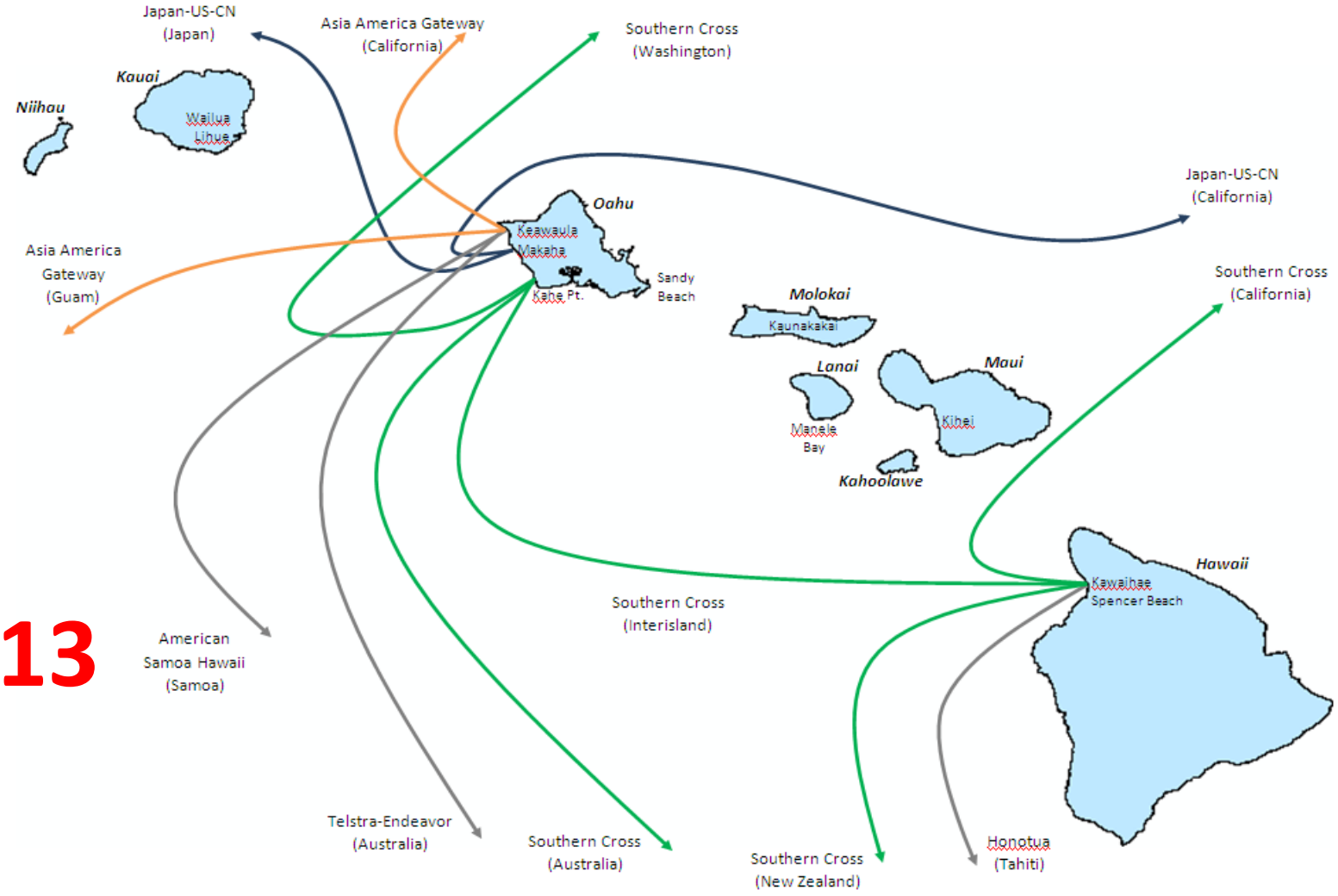
HBI

Transpacific Submarine Fiber

Inter-Island Submarine Fiber

Transpacific Connectivity

6 transpacific submarine fiber cable systems provide most of the State's connectivity



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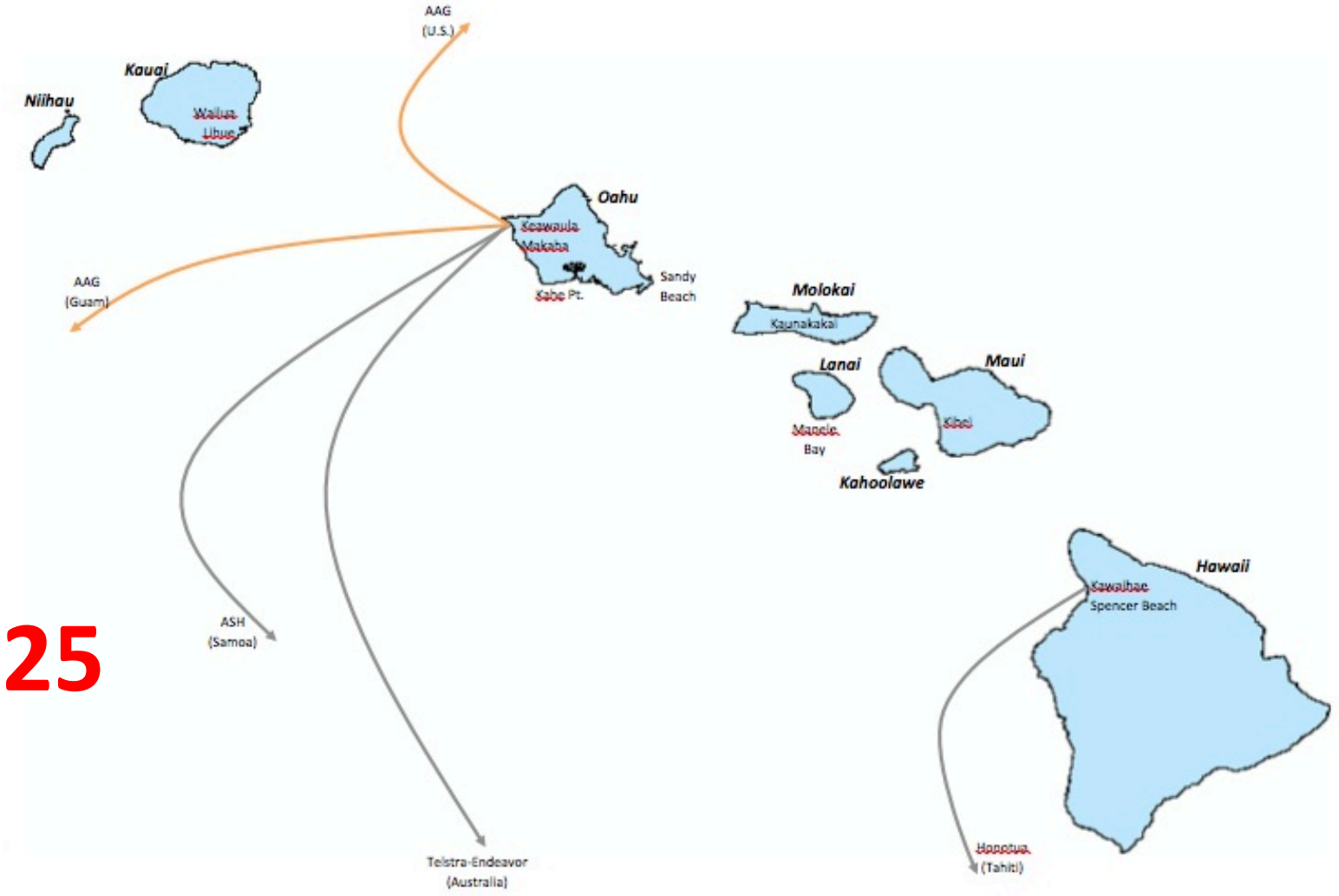
Transpacific Connectivity

4 transpacific submarine fiber cable systems provide most of the State's connectivity



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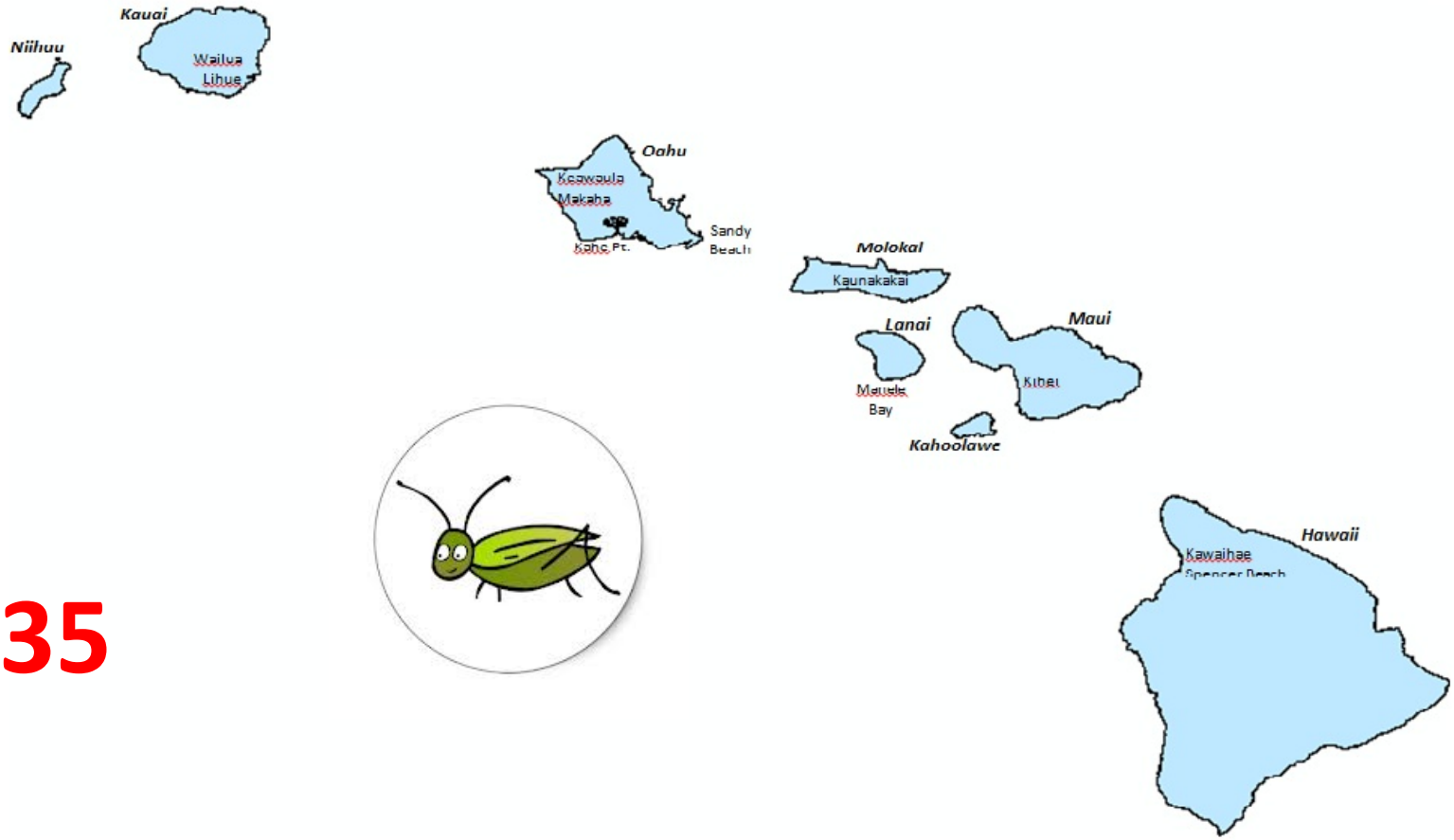
Transpacific Connectivity

0 transpacific submarine fiber cable systems provide most of the State's connectivity



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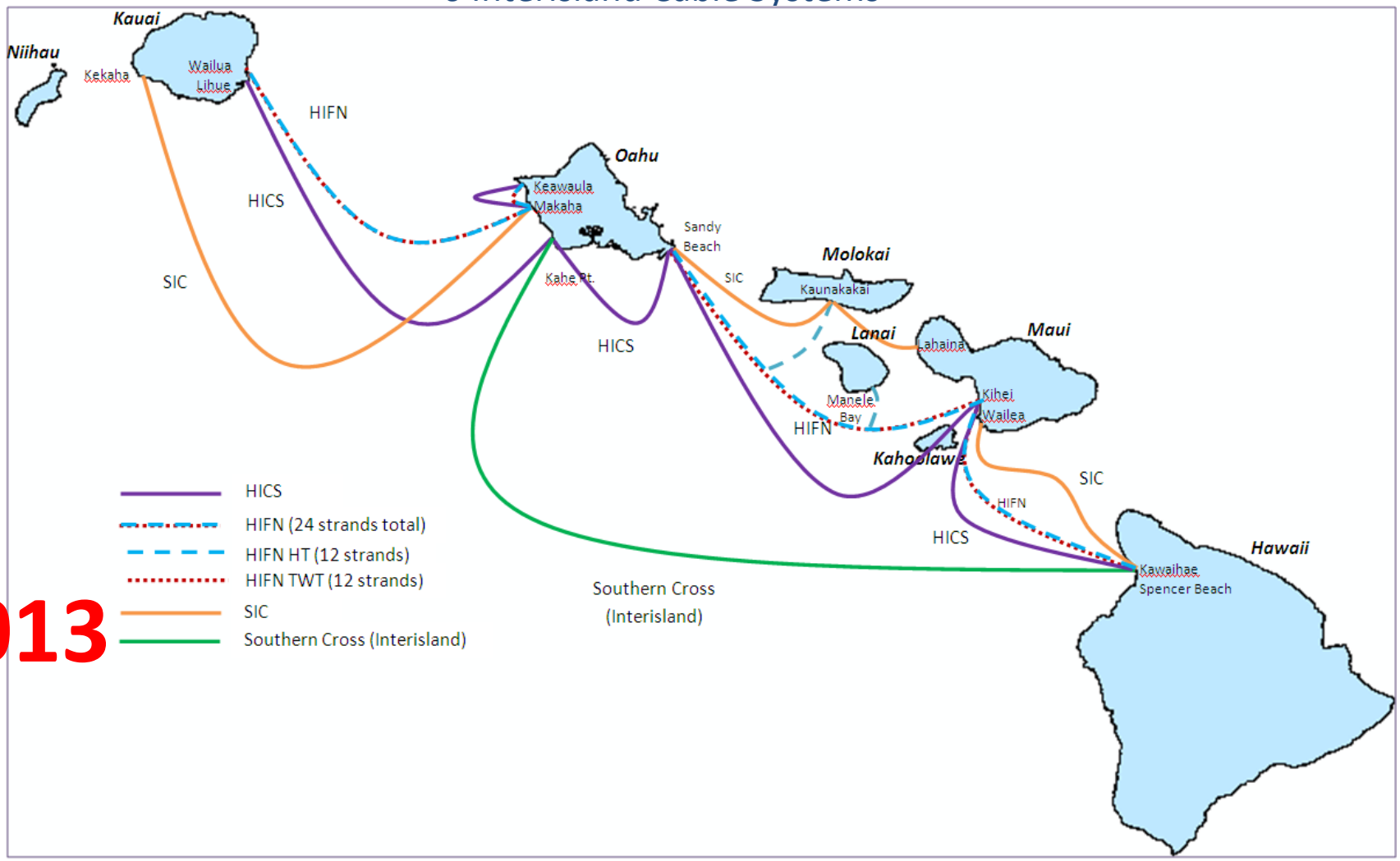
Inter-Island Connectivity

6 Interisland Cable Systems



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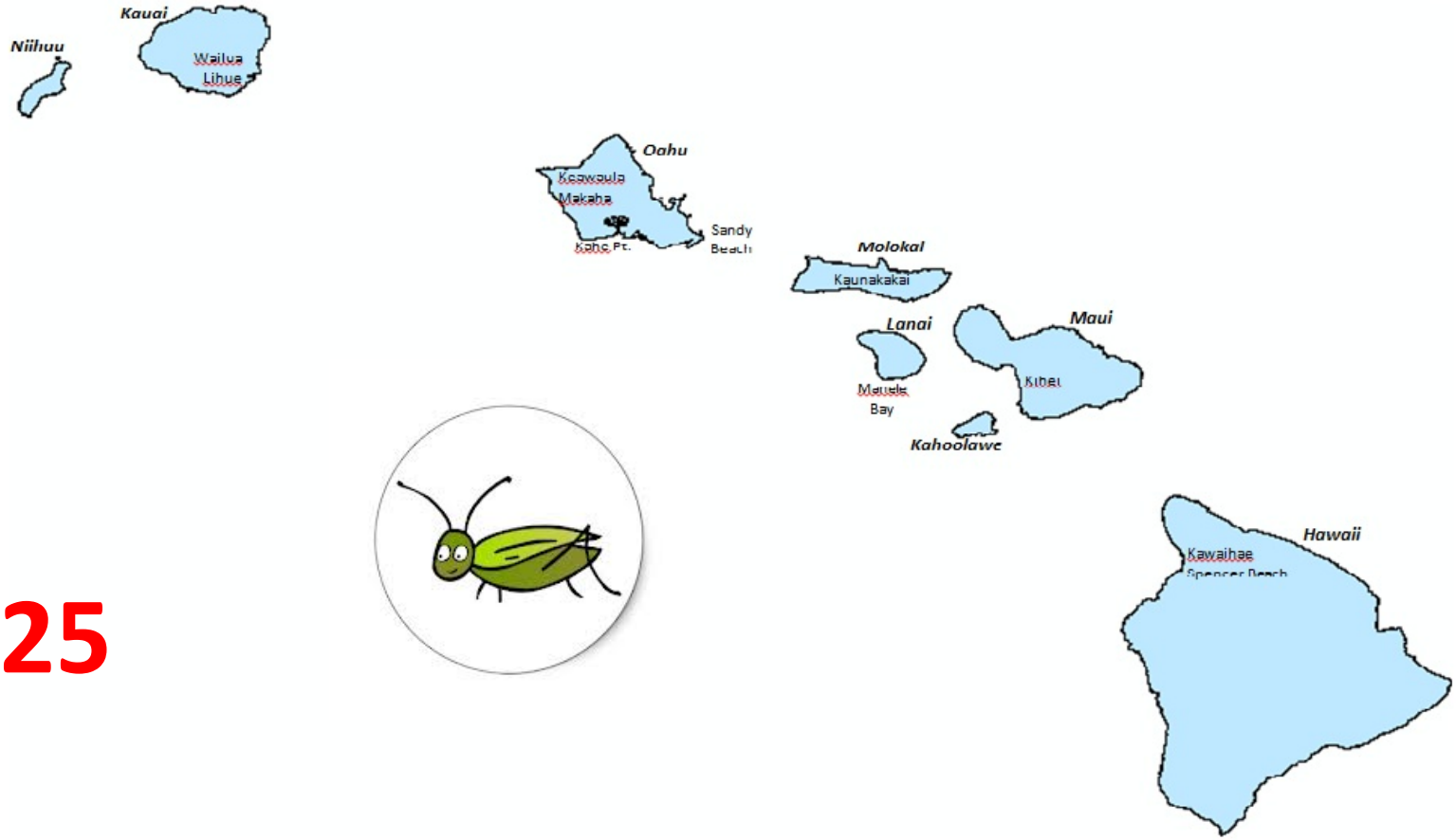
Inter-Island Connectivity

0 Interisland Cable Systems



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Microwave Data Networks offer Additional Inter-Island Backhaul and Emergency Communications

What's it Going to Take?

1. State-Private and State-Federal Partnerships
    a. Joint Applications for Grants
        a. FirstNet
        b. Tele-Health
        c. Public Safety Broadband
        d. Education
        e. Public Services
2. State Contracting for Private Managed Services with Telecoms
3. Regulating Service Level Agreements (SLA's) through Franchises
4. Attracting Consortia for Landing New Transpacific Submarine Fiber
5. Oversight of Strategic Infrastructure Implementation
6. Hardening of Infrastructure (Physical and Cyber Security)
    a. Working with Federal and Three-Letter Agencies to Coordinate

- **Panel Questions**
  - What are the key drivers for Broadband?
  - Bandwidth is increasing exponentially, what are the impacts to our finite fiber optic capacity?
  - Key Lesson(s) Learned and Best Practice(s)
  - Next Steps
  - How can you help?
  - Who do you contact?
    - Keone Kali