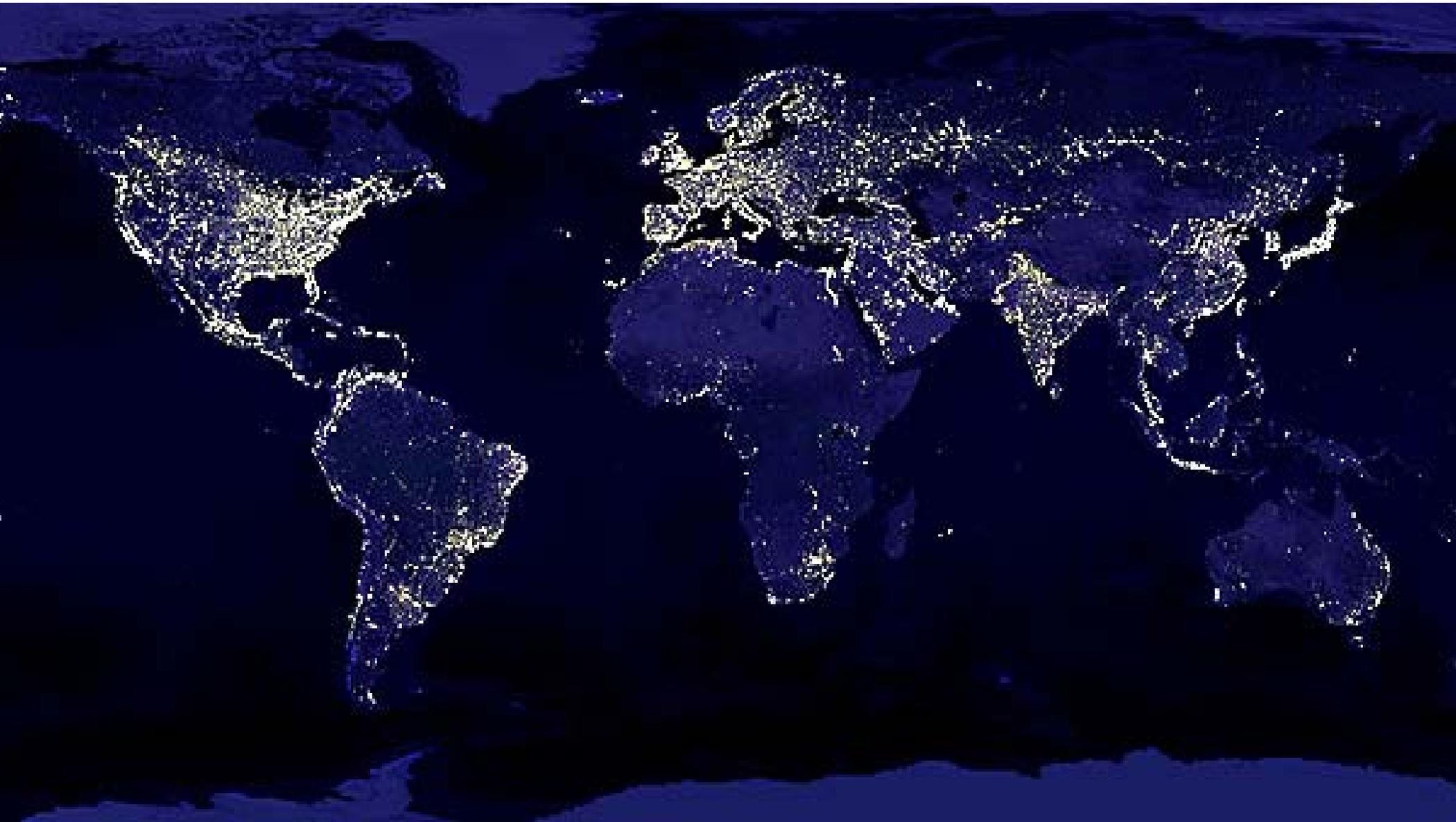


CATASTROPHE!

CIVILIZATION=

Connections x Quality (+ or -)



Density Differentiates

Increasing density amplifies both opportunity and risk. Dense connections facilitate cascades of shifting qualities: good and bad, growth or death.

March 12, 2011

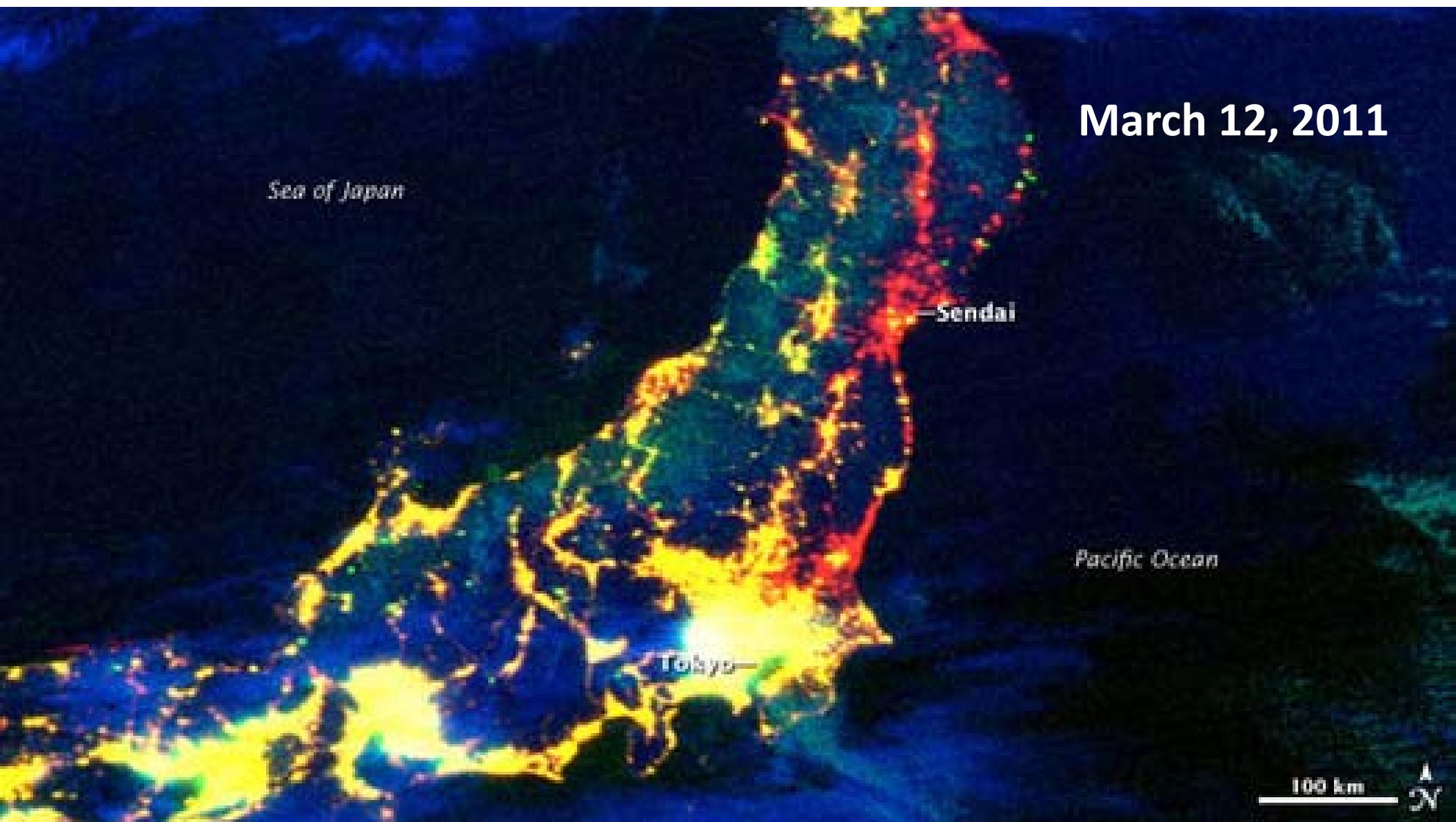
Sea of Japan

—Sendai—

Pacific Ocean

—Tokyo—

100 km





October 29, 2012

Density Differentiates

Dense connections produce interdependencies (e.g. electrical systems, communications systems, water systems, demand and supply systems... etc.).

Density Differentiates

The more dense pre-existing connections, the more difficult to replace those connections post-disruption.

Density Differentiates

15,983,000 meals (each) or 1.33 million cases were distributed by FEMA, ARC, etc. through 11/11.

One grocery supplier surged from an average of 16 million cases to 24 million cases for the week following Sandy.

18X

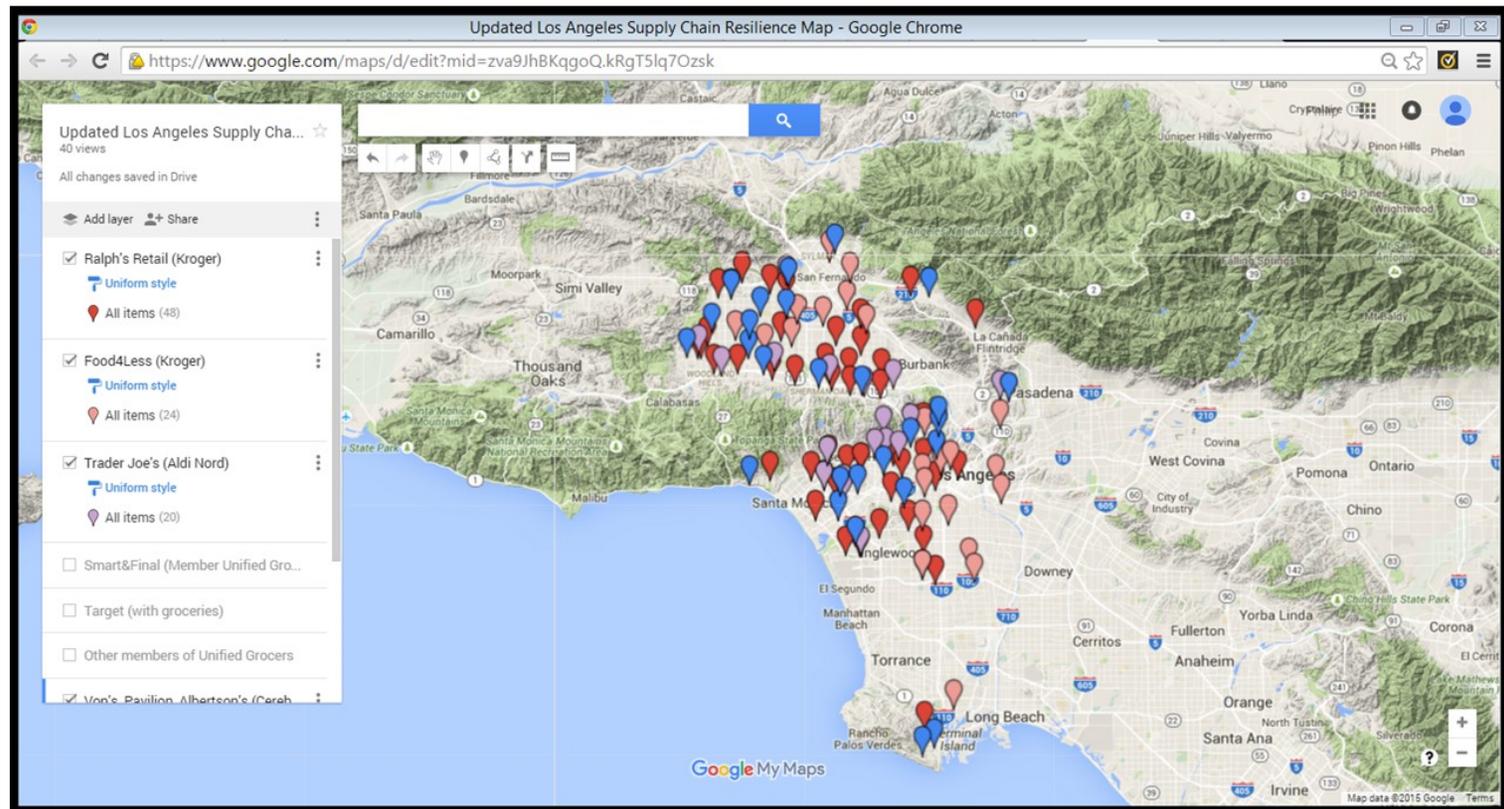


Resiliency vs. Replacement

The more dense pre-existing connections, the more preserving and quickly restoring (if sometimes redirecting) networks becomes the only practical strategy.

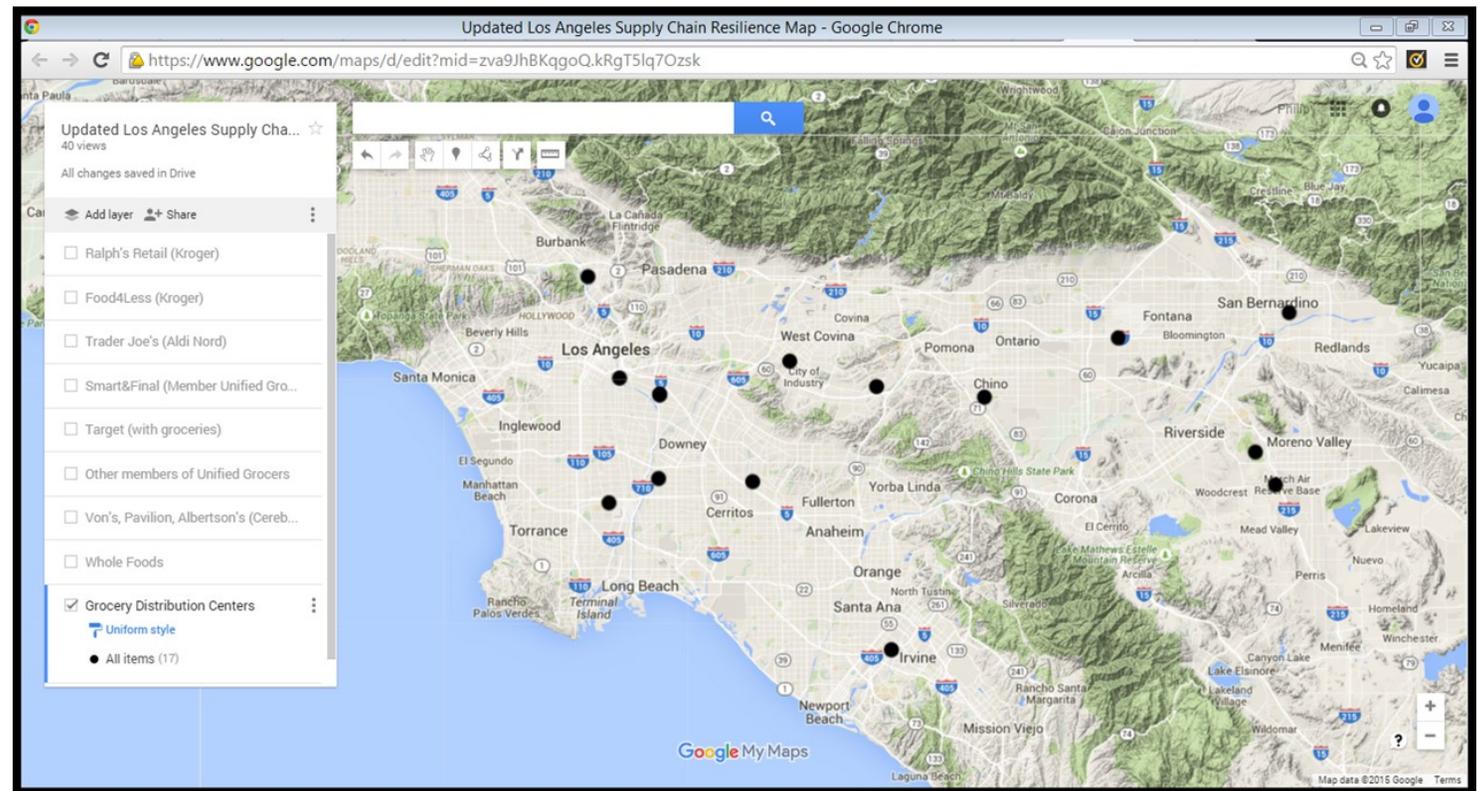
Resiliency vs. Replacement

Who, what,
and where
are demand
nodes?



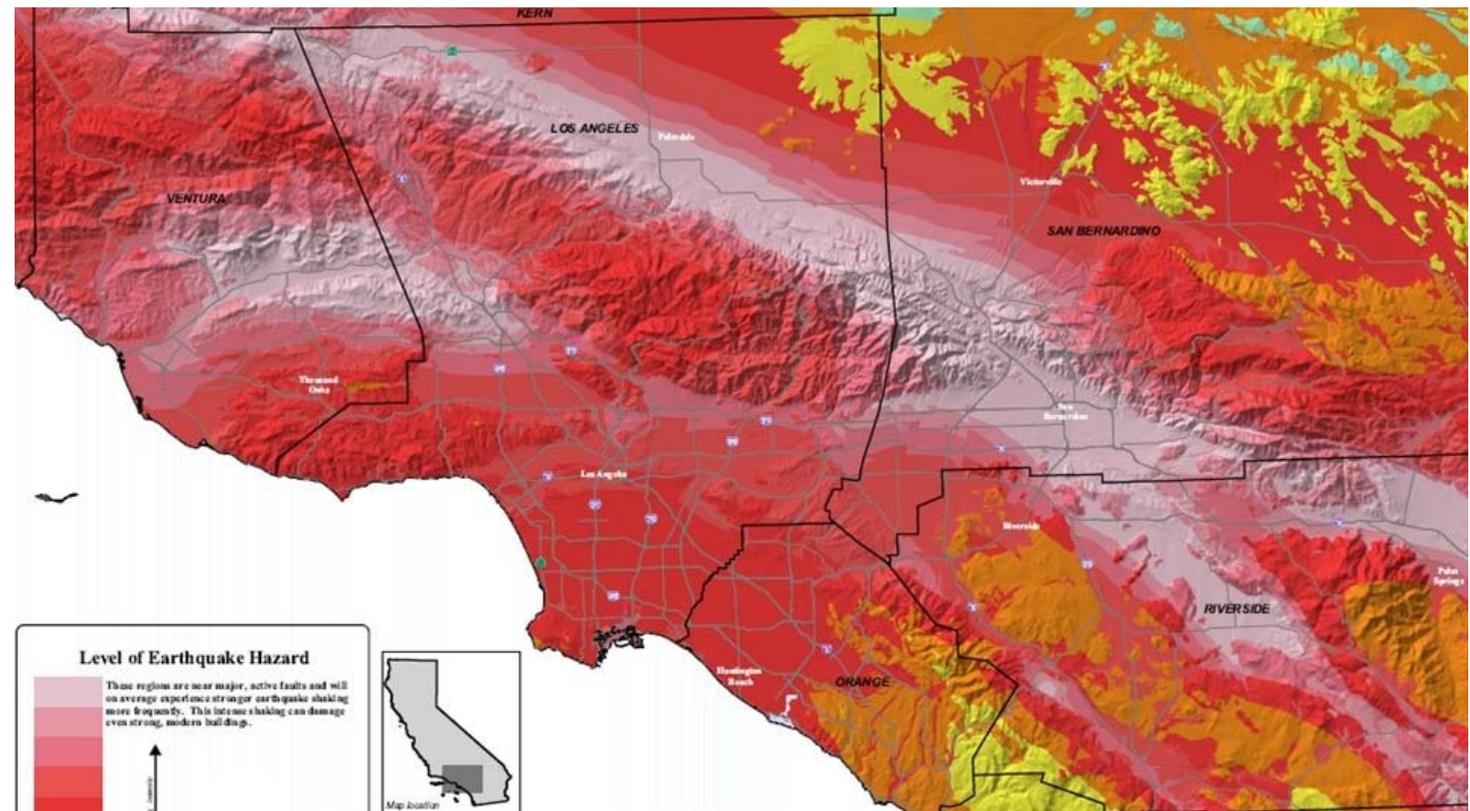
Resiliency vs. Replacement

**Who, what,
and where
are Supply
Nodes?**



Resiliency vs. Replacement

How might linkages between nodes be disrupted?



Resiliency vs. Replacement

Finding the pointy end of the supply chain spear?

Over 1400 grocery and convenience “demand nodes” in City of Los Angeles

Fewer than 140 demand nodes provide 80 percent of groceries consumed

About 14 “supply nodes” are the principal sources groceries for LA and the metro region

How many will Survive the Big One?

Over 3.9 million people in the City of Los Angeles

** Preliminary findings, still being corroborated and validated*

Supply Chain Resilience

Technical Assistance

- Research
- Outreach
- Collaboration

Supply Chain Resilience

Maximizing local capacities
in catastrophe preparedness

Facilitating enhanced local to
federal strategic calibration

Supply Chain Resilience

Questions and Discussion

Connections x Quality

- Mutual Regard
- Responsiveness
- Timeliness
- Relevance