Intelligent Crossroads Network
Wm. Scott Wolford
### Technology Director

Purpose

The Intelligent Crossroads Network (ICN) is a Private LTE/5G and edge network dedicated to logistics and supply chain management.

The ICN aims to create a foundation for a more resilient, secure, and sustainable supply chain for Utah.

Benefits of Private LTE/5G

- Privacy
- Security
- Connectivity
- Control
- Coverage
- Quality of Service
- Deterministic Latency (fixed time for data transfer)
- Capacity
- Resiliency/Reliability

Coverage:

- A private LTE/5G network offers broader range and improved outdoor coverage.
- Devices with SIM cards can connect on an LTE/5G network can connect 1-2 kilometers from the base stations
- Wi-Fi and other solutions don't have the same range. We estimate 400 WiFi access points to create the same cover as 3 LTE/5G small cells
- The ICN can deploy coverage in areas that may not be appealing to traditional networks, but are needed by UIPA stakeholders.

Benefits of Private LTE
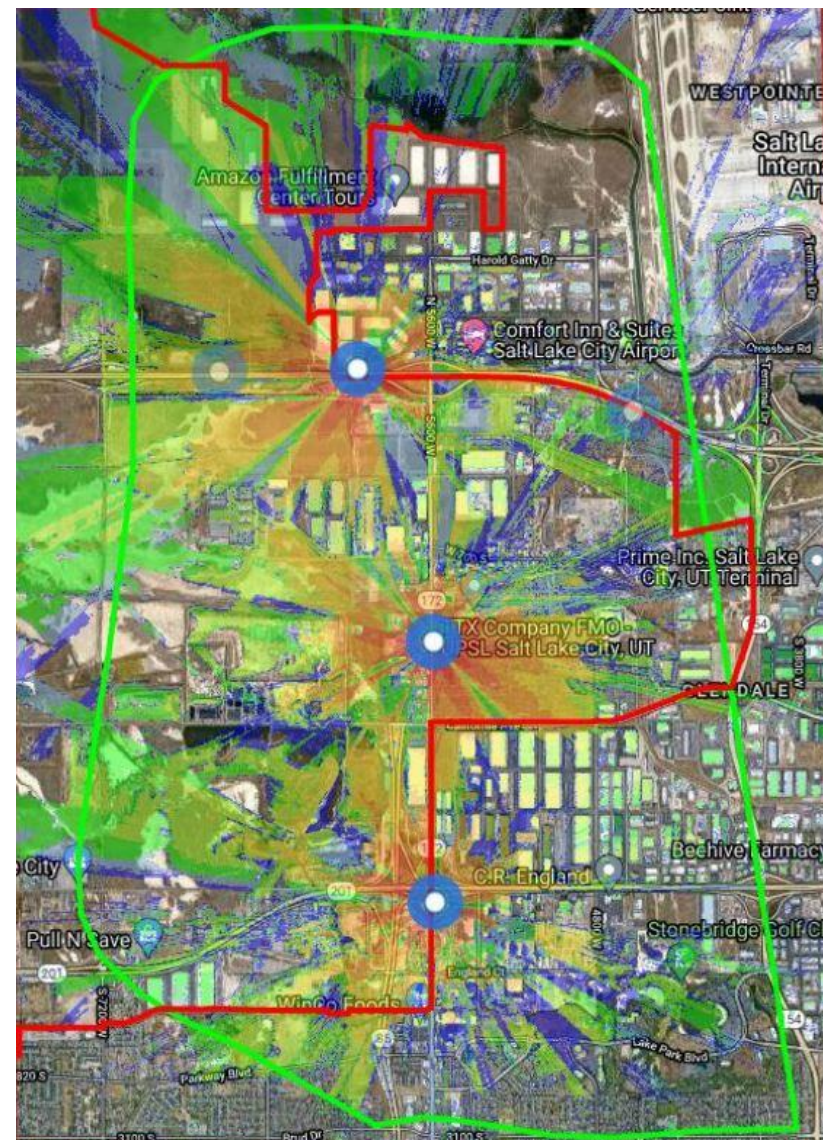
Quality of Service

The ICN gives the UIPA the ability prioritize data traffic, by customer, device, and/or process. This allows them to keep the most critical applications and/or processes running.

Capacity

Without having to compete with other network users, the ICN LTE/5G networks offer a higher capacity, allowing a large number of dedicated devices at the same time. It also allows administrators to set usage policy according to specific needs, including HD video streaming or security applications. We can scale capacity unilaterally.
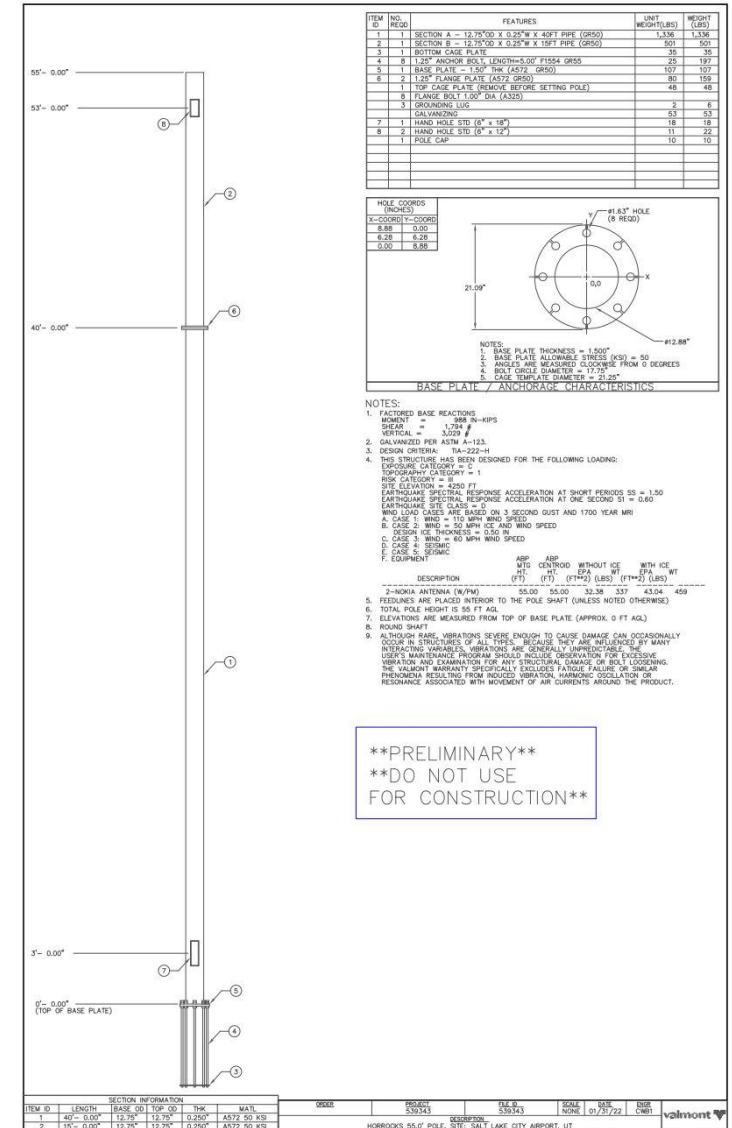
What are we trying to accomplish with the ICN

To support **emerging technologies** surrounding Logistics and Supply Chain movement

To facilitate the **collection of data** to evaluate opportunities for intervention by the UIPA and evaluate the efficacy of those interventions

Build **Digital Infrastructure** for the future in the same way UDOT and UETN have done in the past with fiber.

We can't gather **data** without **connectivity**

What is critical for a public safety first responder is real-time data. Where is it? What is happening? What resources need to be sent?

Logistics is no different than public safety – real-world resources are traversing public byways – real-time data is needed to bring improvements to that effort

UIPA will **own** the infrastructure related to the ICN

These assets can be made to a host of different partners that tie into supporting and improving supply chain management

Will be an an attraction for global companies to come to Utah i.e. Einride.

The public good will be prioritized first

- **UDOT.** Their commitment to provide land and resources, access to their fiber network for the ICN, with the understanding they will have access to the initial data that the ICN is able to provide. The work Horrocks Engineers have done for the ICN is also connected to UDOT.

- **University of Utah.** We are working with the U to develop a sponsored research agreement with the Powder Center (Platform for Open Wireless Data-driven Experimental Research.)

- **RSD and Mountain West Container Services.** These are the two leading drayage truckers in Utah, and they have invested substantial time and resources to help develop the first phase of the ICN. They have agreed to provide space for data collection resources and are anticipating movement data from their locations and Union Pacific.

- **Malouf and other Utah import and export companies** have invested time and resources to assist the ICN construction with an expectation of receiving valuable data and solutions once construction is completed.

- **Federal Maritime Commission** – a joint white paper accompanied discussions with the Commissioners and the FMC Chairman on how the ICN offers a solution to data gaps in the supply chain.

- **The Ports of Long Beach, Oakland, Miami, Virginia, and Seattle/Tacoma** who are looking at the ICN as a foundational piece of the Supply Chain Information Highway which will help resolve the data issues in all US Ports

- **The AAPA** support of the ICN and opportunity to promote this technology and digital infrastructure across all US Ports, following the leadership from the UIPA and the committed investment in the ICN

- **Utah State University and ASPIRE.** USU and Professor Rose Hu are working with the UIPA on possible sponsored research on distributed processing on the edge over private 5G which relies on the ICN to trial. The ASPIRE center and their pilot project at the UIPA is expecting data, ongoing connectivity, and resources provided by the ICN. The ICN is a very promising potential solution to billing for dynamic electric vehicle charging.

- **Idaho National Lab.** The opportunity to apply cybersecurity in the supply chain with a focus on national security using 5G and edge network and in possible applications at the UIPA. This in combination with the UofU.

- **Intel.** As one of the ICN's main technology partners, Intel has provided resources to produce and promote videos and other information on the UIPA and the ICN.
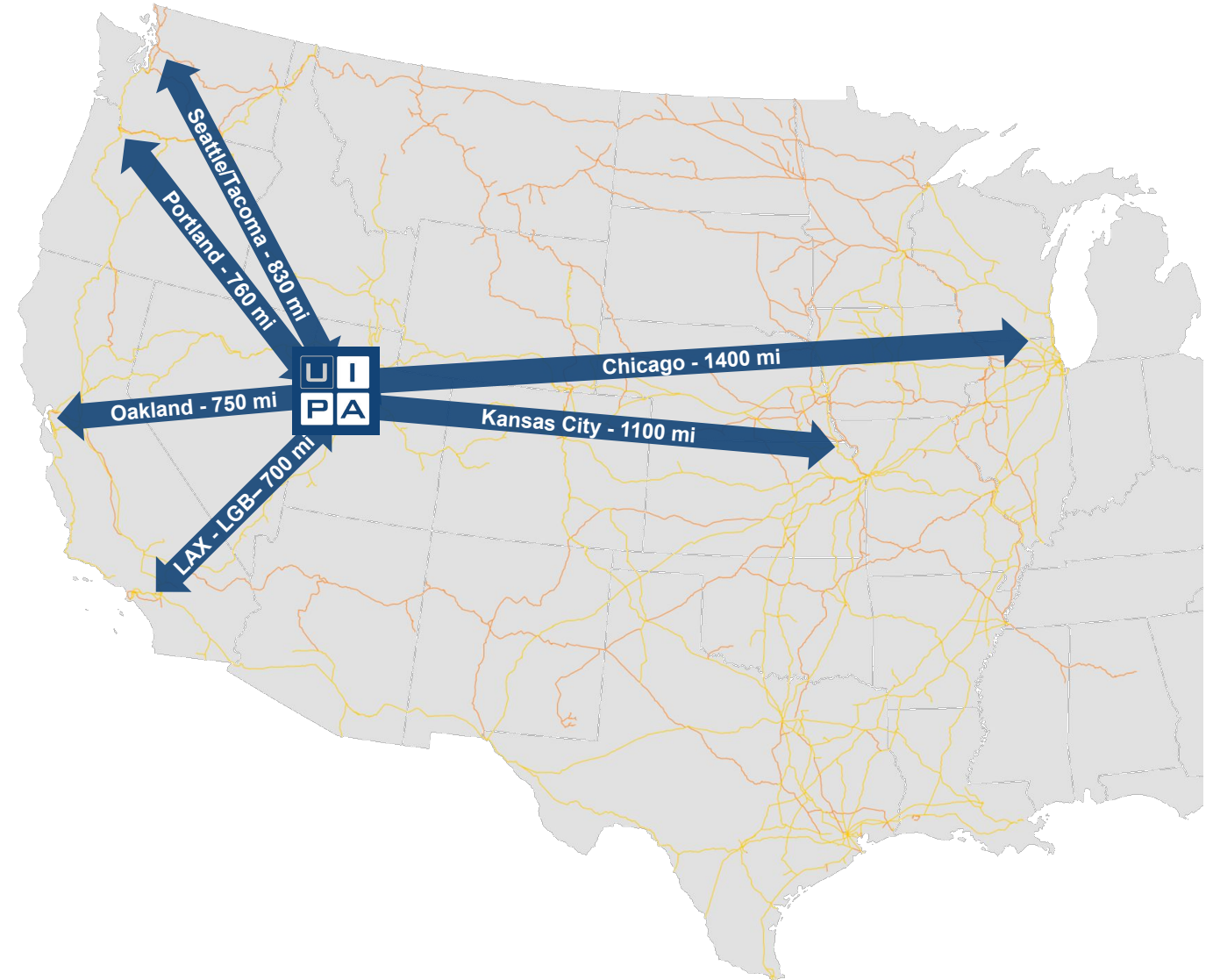
Data

Crossroads of the West

Sweet Spot Geography

- Strategically located
- Uniquely situated

Highway System

- East – West : I-80, I-70 & I-84
- North – South : I-15, US-191 & US-89
- I-80 & I-15 converge in Salt Lake City

Rail Connections

- 1,300 miles of freight rail
- Class I Service
  - Union Pacific
  - BNSF (via rights)
- Multiple short line operators
- 2,400 TEU Daily in SLC

Immediate Relief

- Direct intermodal rail & road services
- State of the art distribution capacity
- Immediate West Coast port's relief

Seattle/Tacoma - 830 mi
Portland - 760 mi
Oakland - 750 mi
LAX - LGB – 700 mi
Chicago - 1400 mi
Kansas City - 1100 mi