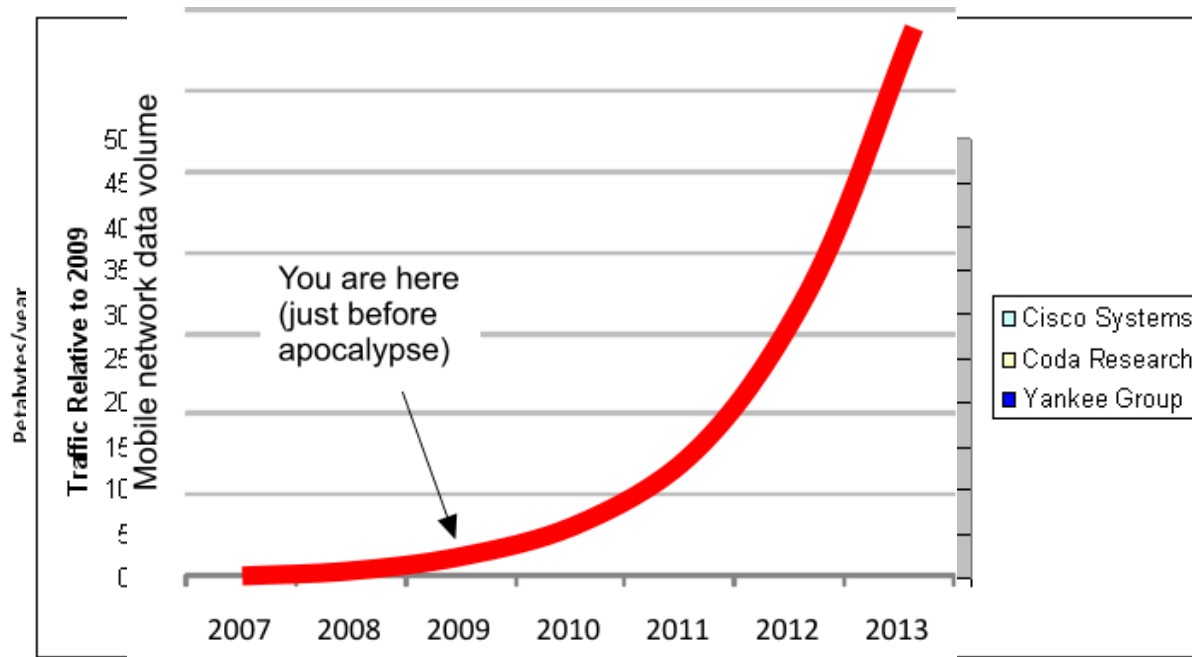




700MHz Broadband Demonstration Network Overview

PSCR 2010 Winter Conference

Broadband Market Increase



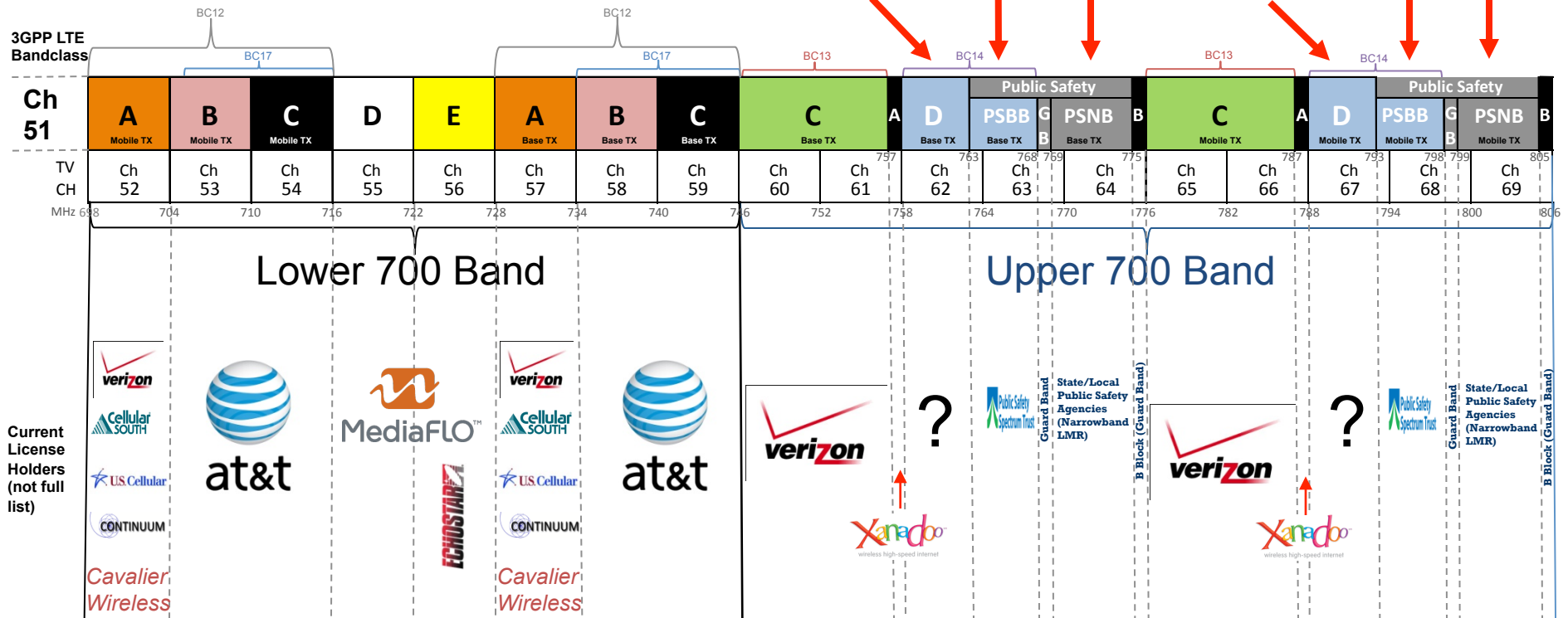
Source: Cisco Systems, 2010

Why a Demo Network for Public Safety?

- Public Safety has been licensed to use 700MHz spectrum but there are currently no government or independent laboratory facilities in the United States to test and demonstrate the public safety specific LTE implementation requirements
 - PSCR is creating this network to provide manufacturers with a site for early deployment of their systems, an opportunity to evaluate them in a multi-vendor environment, and create integration opportunities for commercial service providers.

700 MHz Spectrum

- Full BandClass 14 support for both 25 and
- 50 resource blocks (5 & 10 MHz channels)
- MCPA required for simultaneous D and PSST Transmission – primarily concerned with PSBB
- Ue full band support
- Demo network Filter specifications TBD by August



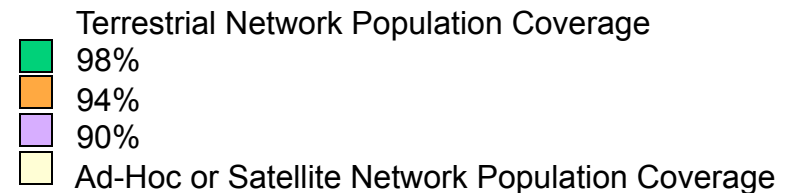
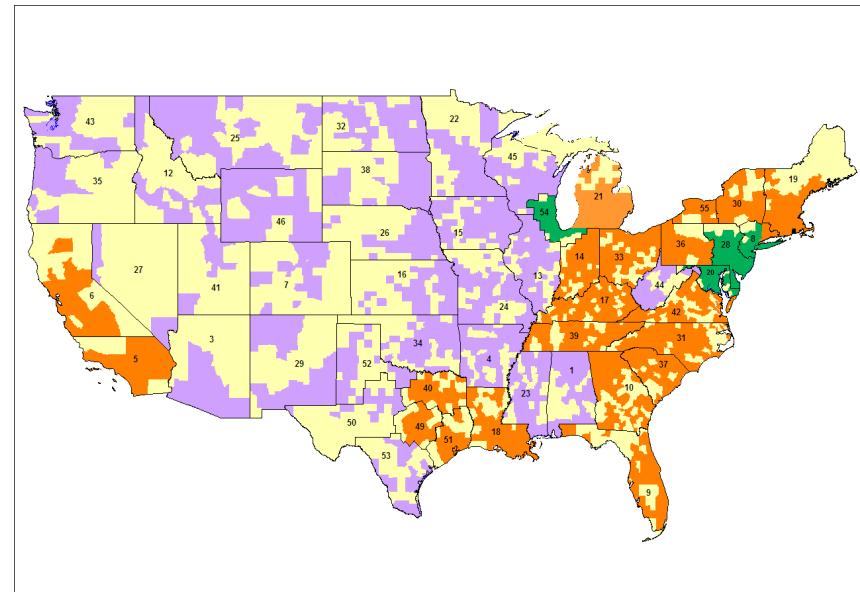
700 MHz Broadband... History

- The 700 MHz broadband spectrum allocations were created over several years and rulings by the Federal Communications Commission (FCC).
 - 1997, Congress directed the FCC to allocate 700 megahertz (MHz) band spectrum to public safety
 - 2005 Congress passes Digital Television Transition and Public Safety Act
 - The public safety 700MHz broadband spectrum and the D-Block are based on clearing of UHF TV stations 60 – 69 (746 – 806 MHz)
 - On July 31, 2007 the 2nd Report and Order was created by the FCC to “to promote the creation of a nationwide interoperable broadband network for public safety and to facilitate the availability of new and innovative wireless broadband services for consumers”.
 - March 2008 – FCC Auction 73 fails to attract D-Block bidder
 - **July 2009 LTE selected by public safety as their next generation technology**
 - **March 2010 FCC releases National Broadband Plan**
 - Establish the Emergency Response Interoperability Center (ERIC) to develop standards for interoperability and operating procedures in conjunction with PSST and PSCR
 - Allows use of Federal funding to deploy the network
 - **Spring 2010 PSCR kicks off 700 MHz LTE Demonstration Network & FCC waivers granted to 20 jurisdictions for early deployment**
 - **Summer 2010 NTIA the second round of the Broadband Technology Opportunities Program (BTOP) funding to support initial waiver jurisdictions ~ \$400 MUSD awarded to 7 jurisdictions**



Market Share

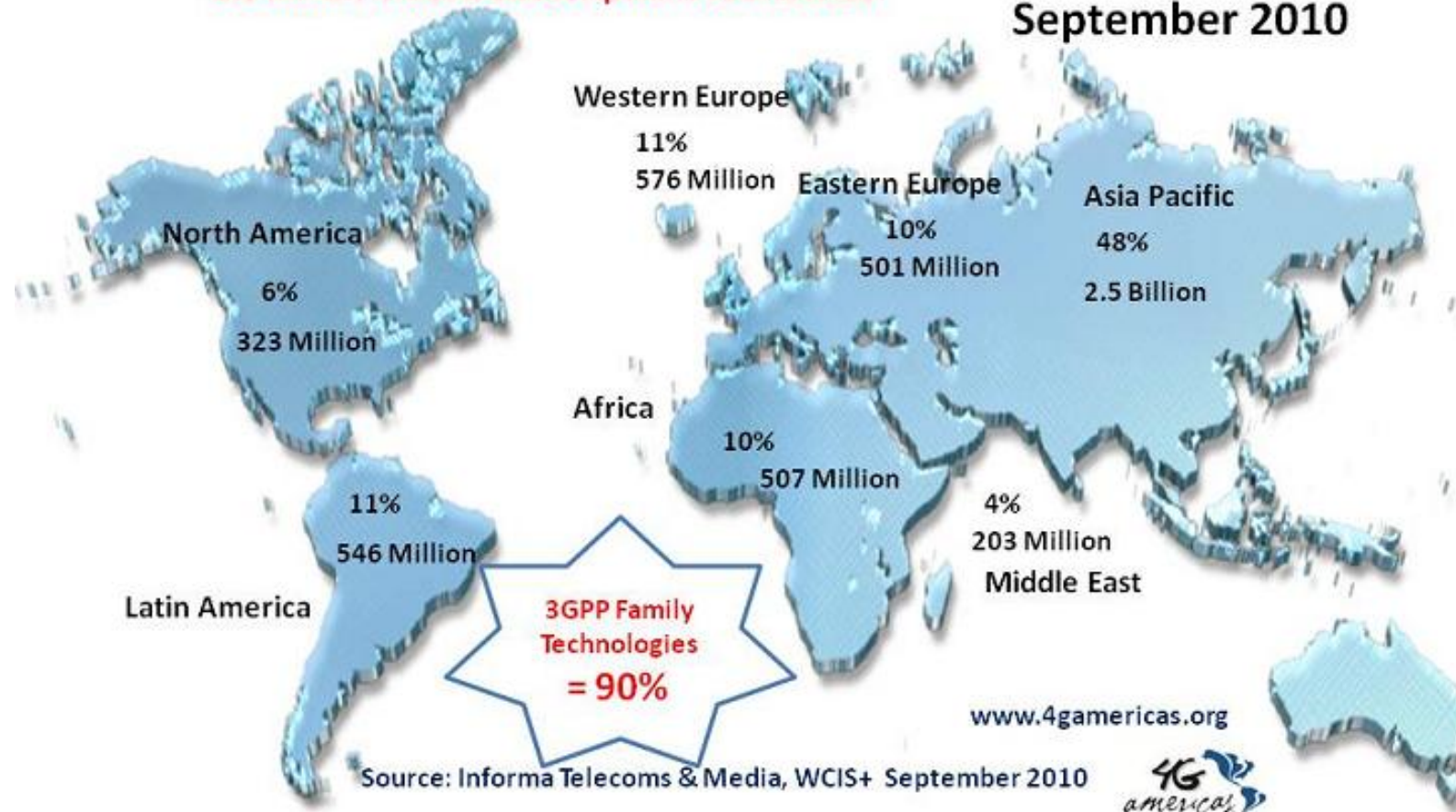
- Creates a new nationwide spectrum block for public safety users and potentially commercial users (e.g. critical infrastructure - Utility Companies)
 - Includes all Emergency Support Functions (ESF) for local, state and potentially federal users
 - 2008 Census data shows 22.5 million Fed/State/Local employees
 - State – 5.3 million
 - Local – 14.4 million
 - Federal – 2.8 million
 - Approximately 4.1 million ‘first responders’
 - **Does not include redundancy, M2M or sensors**
- Typical nationwide cellular service providers require approximately 40,000+ macro base-stations



Worldwide Comparison

5.1 Billion Mobile Subscriptions Worldwide

September 2010



PSCR Demo Network Project Plan

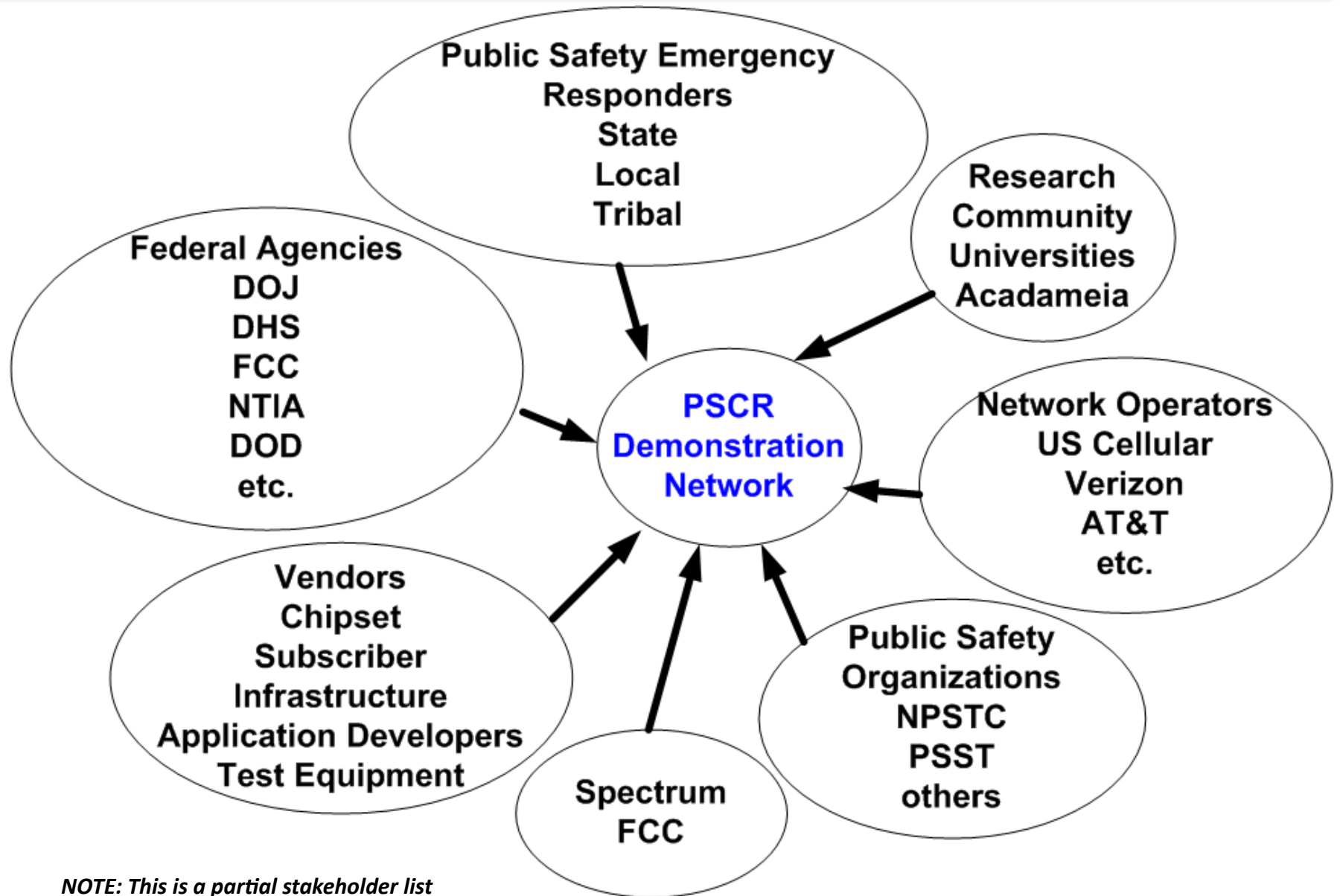
- Generate interest from broadband vendors to develop a 700 MHz broadband equipment ecosystem
 - Band Class 14 (D Block & Public Safety Block), Long Term Evolution (LTE)
 - Stimulate early development for public safety systems (e.g. Waiver Orders)
 - Support the commercial standards and testing process with public safety requirements e.g.



PSCR Demo Network Project Plan (cont.)

- Demonstrate broadband air-interface and core network capabilities
 - Proof of concept, Improve quality for future systems, Create new technology and requirement benchmarks
 - Evaluate broadcast capabilities for wide area, simultaneous data delivery
- Interoperability with existing cellular, broadband and LMR technology
 - Roaming functionality with LTE and non-LTE systems
 - How QoS, billing, priority, pre-emption and applications work when roaming
- Validation of key public safety functionalities and requirements

Demo Project Stakeholders



NOTE: This is a partial stakeholder list

Working Groups

- Four Working Groups (details in next session)
 - Evaluation Test Working Group
 - Application Demonstration Working Group
 - Network Architecture Working Group
 - Waiver Recipient Working Group

Demonstration Network Outcomes

- Stakeholders will be able to deploy their equipment in a neutral host network.
- Inform public safety on how this new technology can meet their requirements.
 - Allow public safety to access the cost savings and innovation of the larger commercial market
 - They do not have to potentially waste capital expenditures for evaluating a network technology.
- Information & test results gleaned can inform all stakeholders

Demonstration Network Outcomes (cont)

- Help create nationwide interoperability through a unified approach to network design and implementation
 - Requirements definition & standards development
 - Testing (conformance, performance and evaluation)
 - Planning – Network architecture, RF, IP, PLMN, IMSI, eNUM, Security, Application... etc
- **NOTE: Information published will be non-attributable**



Q&A

Thank You