The Governor's Task Force on Broadband
August 16, 2017
MVTV Wireless

- Incorporated in 1960 as a Low-Power TV Retransmitter
- Non-Profit / Member Owned
- ~6500 Fixed Wireless Members in 26 Minnesota Counties (33 w/SD & IA)
- Coverage ~ 25,000 sq. miles
MVTV Wireless Deployed Technologies

- **Point-to-MultiPoint (last mile customer premise)**
  - Licensed Basic Trade Area – 2.5GHz (WiMAX)
  - Lite-Licensed 3.65GHz (WiMAX)
  - Legacy 2.4GHz and 5GHz (WiFi)

- **Back Haul (transport)**
  - Legacy - 5GHz – up to 200Mbps
  - Licensed Microwave - 11GHz – up to 800Mbps
  - Fiber (1 - 10Gbps)
MVTV Wireless Internet Services

- **Wireless Internet**
- **Digital TV**
- **Network Extension**
- **Point-to-Point**
- **Virtual Networks**

**Residential Internet Services**

- **Up to 1.5M** - $49.95/month
- **Up to 2.5M** - $59.95/month
- **Up to 5.0M** - $69.95/month
- **Up to 10.0M** - $74.95/month
- **Up to 25.0M** - $99.95/month **available in select areas only**

*Residential Install $114.95 (Includes membership, installation & activation)*

**Commercial Internet Services – Prioritized Service**

- **Up to 2.5M** - $62.95/month
- **Up to 5.0M** - $87.95/month
- **Up to 10.0M** - $112.95/month
- Customized Commercial Packages 25M+

*Commercial Install $164.95 (Includes membership, installation & activation)*
Fixed Wireless Future

• Underserved Rural Areas
  • 87% of MVTV’s members reside in Townships

• Economics of Delivery
  • Cost Per Last Mile Delivery < $70
  • Cost Per Mile of Infrastructure < $1500 (including Plant)

• Wireless Enhancements
  • FCC Band Plans
  • 802.11-2016 \( (n, p, u, y, ac, ad, af, (ax, ay 2019)) \)
  • 3GPP \( (LTE, LTE Advanced & LTE Advanced Pro) \)
  • 5G...

• Greater Spectrum Efficiencies and BIGGER Bandwidth
The IoT and Fixed Wireless

- Fixed wireless is simply a “medium” for connectivity
- Both LAN and WAN
- 802.3 (Ethernet)
- Is your network ready for IPv6?
  - Standard direct assignment for large organizations and ISPs is a /32
  - Suggested customer allocation is /64

/64 = 18,446,744,073,709,551,616 IPs
(18 quintillion, give or take some 400 quadrillion IPs)

/32 = 4,294,967,296 /64 subnets
(A single IPv6 /32 subnet is the equivalent of the entire IPv4 pool)
The Value of Wireline

- A requirement for aggregation
- Provider access to "the Internet"
- Access is an incidental cost...commodity
- Its "value" may be cost prohibitive
Fixed Wireless and Cybersecurity

• No more/no less prone to attacks than any other “network”.
• Network “breaches” generally occur on a “network” device...
  • Routers, switches, servers, and end user devices with a public IP
  • Radios can be “routers”; dual role would make them a “network” device
• A cyber attack on the “wireless” portion of the “network” would be the long way around...
• Fixed wireless is not “open WiFi”; or at least, it shouldn’t be!
Thank you!