



Presentation on “I-Nets”

Minnesota Broadband Task Force
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Definition

- “I-Nets” = **negotiated as part of cable franchises** to provide networks that connect “institutional sites” such as city/county facilities, schools, and libraries
- Is it time to update the definitions of “I-Nets” and “Institutional Networks”?

Users of I-Nets

- Cities
 - Police, Fire, 9-11 Dispatch, Sports & Rec facilities, City Halls, Water Treatment, etc.
- Counties
- K-12 schools
- Colleges and universities
- Libraries
- State agencies, courts, etc.

What is the Role of I-Nets in Minnesota?

- Historically, I-Nets **enabled** some of the first, fastest and most affordable voice, video, and data connections for institutional users such as cities, counties, schools, and libraries.
- I-Nets paved the way for **collaboration and creative partnerships** that pooled resources and expertise, created efficiencies, and broke down bureaucratic barriers between large institutions.
- Currently I-Nets provide **critical connections** for public institutions at speeds and prices that these institutions cannot obtain in the private sector.

There is no “cookie cutter” I-Net

- Original I-Nets from the early 1980's used **co-axial cable** connections provided by the cable company that were usually segregated, separate lines connecting institutional facilities.
- I-Nets evolved and transitioned to **Hybrid Fiber/Co-axial (HFC)** networks.
- I-Nets built more recently are **100% fiber** networks, with still more variations.

Variations on Fiber I-Nets

- Separate and distinct fibers connecting the institutions, totally **segregated** from cable operator traffic, operators' clients traffic or the public internet.
- Connecting institutional facilities but **co-mingling traffic** with the cable operator and its customers' traffic
- **“Dark fiber”** networks where the institutions control the network design, purchase, management and upgrades of hardware all independent from the cable operator.
- **“Lit fiber” or “managed services”** networks where the cable operator provides hardware and manages institutional traffic, along with traffic from other non-institutional customers, often using the same fiber infrastructure.
- Each architecture has **varying financial arrangements**, usually spelled out in a franchise agreement.

How are I-Nets paid for?

- Cost is covered by the **cable operator** (part of its “rent” for use of ROW) as a cable franchise requirement
- Cost is “subsidized” by **cable subscribers** if there is a “PEG Fee,” “Franchise Fee,” “I-Net Fee,” or other “fee” on the bill that is used to support the I-Net
- **I-Net users** pay for capital/construction costs of fiber
- **I-Net users** pay for operating costs such as repairs/maintenance/network management/hardware, etc.
- **Efficiencies or cost savings** may be achieved by I-Net and subscriber net construction, upgrades, or operations happening simultaneously.

Many I-Nets are in a period of transition

- Some cities, through cable franchise renewal negotiations, intend to continue their I-Nets.
- Some cities are entertaining bids to lease dark fiber OR contract with “managed services” providers (franchised cable operator would be eligible to bid along with other providers).
- Some cities build their own fiber networks, either alone or in partnerships.
- Partnerships may be public or public/private.

“Data” on Minnesota I-Nets (anecdotal only)

- **Twin Cities** metro area has 20-25 active “LFA’s” (“Local Franchise Authorities”) and most either had or have I-Nets in their cable franchise ordinances
- **Greater Minnesota** has many active LFA’s as well, and many had or have I-Net obligations
- MACTA and LMC, NATOA and NLC have recently expressed interest in collecting data
- Similar examples and varieties of I-Net structures and designs exist **nationwide**

MAJOR TYPES of I-Nets

- **“PEG” (“Public/Education/Government TV”)-only**— used for local community cable programming backhaul, distribution, monitoring for cable TV and possibly for web stream of local video programming
- **Single Institution**— all sites are owned by one city, school district, or county
- **Multi-Entities**— a network including sites that may be owned/controlled by cities, counties, school districts, state agencies, libraries, colleges, or other public entities

MAJOR TYPES of I-Nets, continued

- **Anchor Institutions**— a network connecting public, government, or institutional sites like schools, libraries, police departments, fire stations, and city halls
- **Residential or Business Customers**— Some franchise agreements allow for the cable operator to use the I-Net's excess capacity for its use or for business purposes. Few, if any, of these arrangements have resulted in non-institutional use of the network.

Connectivity and Partnerships—

What do I-Nets care about?

- **eRate**— Many cities , schools, and libraries are utilizing discounts such as E-Rate and state provided “gap funding” and are dependent upon these funds for their essential voice/video/data connections.
- **public and municipal broadband**— I-Nets have thrived because of local governments’ ability to meet the unique community needs and interests through cable franchising, and as I-Nets evolve, they must be free to make local decisions without state or federal restrictions on building, financing, or partnering their networks.

Connectivity and Partnerships—

What do I-Nets care about?

- **eligibility for funding**— I-Nets must continue to be able to take advantage of federal and state broadband grants, bonding, private investment, and other financial tools.
- **public / private partnerships**— I-Nets have been very successful at breaking down traditional barriers between tightly structured entities and must continue to do so as they evolve.

Connectivity and Partnerships—

What do I-Nets care about?

- **public safety/emergency planning/Homeland Security/cyber security**— I-Nets carry highly sensitive priority traffic such as 911-dispatch, and the need for bigger, faster and highly secure pipes grows with the explosive growth of video, high-def, and other large files.
- I-Nets are acutely interested in **state and national issues** such as:
 - FirstNet national public safety network
 - Text-to-911 and other upgrades to use of social media, etc.
 - Spectrum-related issues
 - Tower siting and ROW-related issues

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