

Build, Find Partners for and Fund Broadband Networks

TIES 2005 Conference presentation

Wendy Chretien, Elert & Associates

Craig Rapp, Springsted Incorporated

Agenda

- Introductions
- Terms & definitions
- Who and why
- Getting started
- Funding
- Case studies
- Q&A



Terms

- MAN (Metropolitan Area Network)
- WiMAX
- Point to point
- Home run
- Ring
- Mesh
- Broadband
- Public Rights-of Way (PROW)



Transport Media

- Fiber and wireless are not mutually exclusive
 - Use fiber in building-to-building links
 - Use fiber as a “backbone” for wireless nodes
 - Use wireless to reach distributed and mobile users
 - Wireless can also back up a fiber optic network

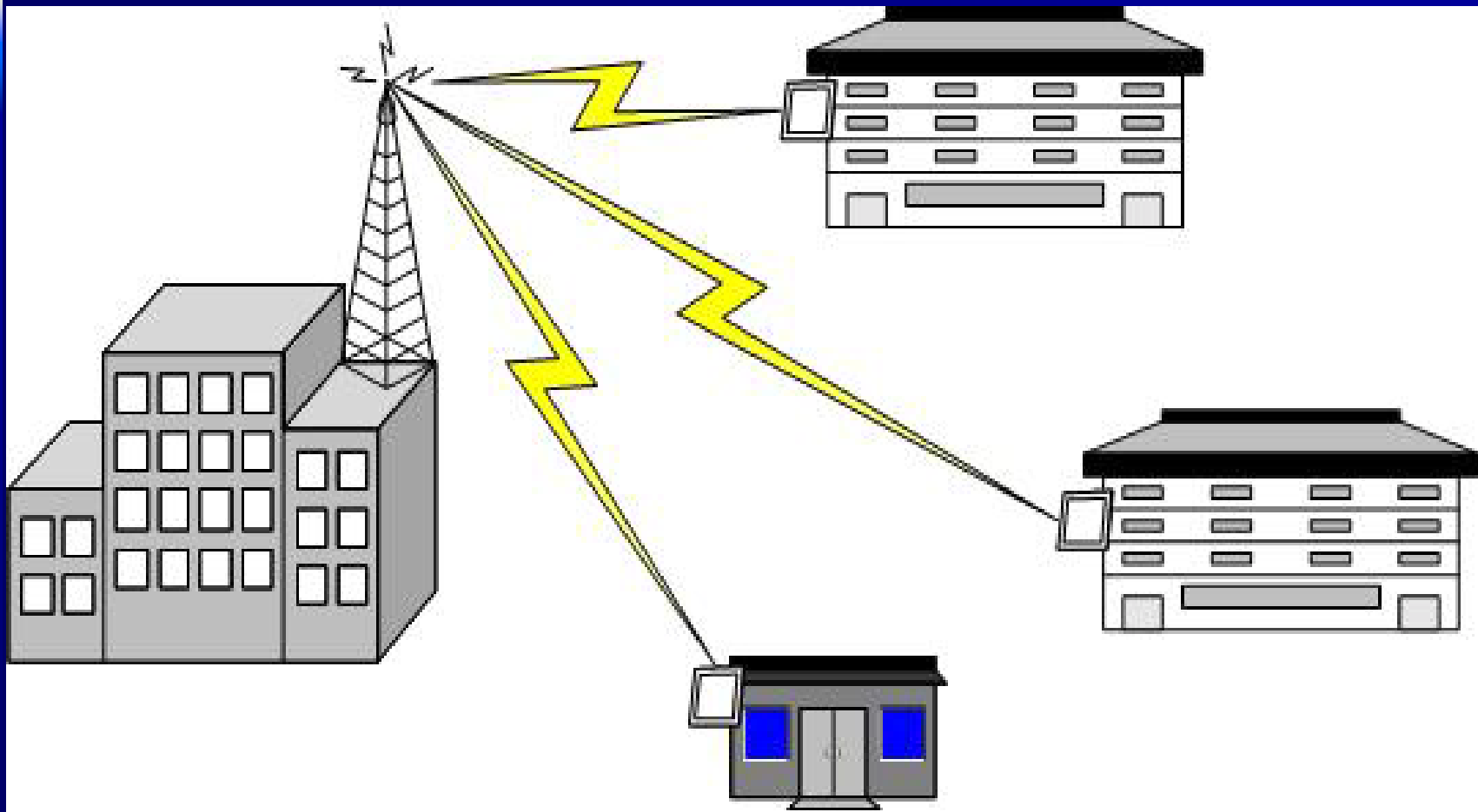


Fiber

- Capacity 40 Gigabits per wavelength
- Up to 32 wavelengths on 1 pair of fiber strands
- Most current uses at one Gigabit (1,000 Mbps)

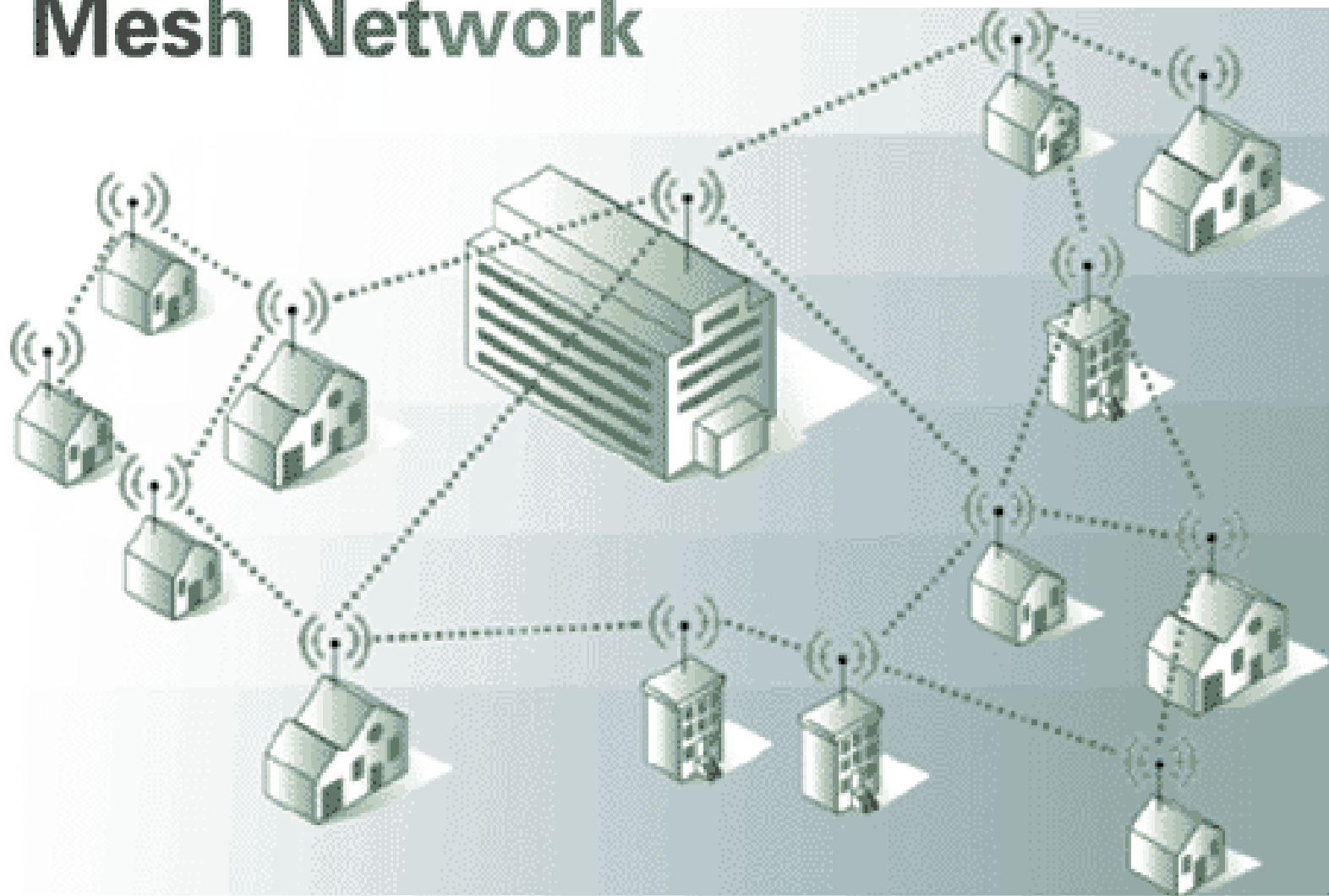


Point to point wireless

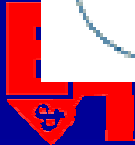




Mesh Network



Source: Nokia (www.nokia.com)



What if we're already fibered?

- Digital divide?
- Is all your fiber in use?

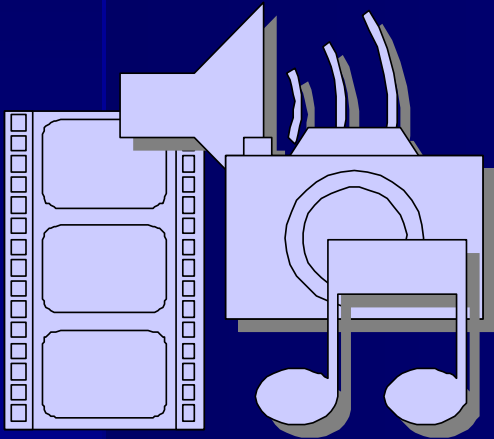


Why not just use service providers?

- Who? Phone companies, cable companies
- Availability
- Multiple providers/contracts
- Security and filtering
- Ongoing costs
 - HOWEVER, commercial offerings do generally qualify for e-rate



Rationale or “why now?”



- Web-based services – online courseware
- Internet2
- Share voice and video resources – cost savings
- Data driven decision making – contributes to accountability
- Reliable and stable services



Potential Benefits

- Share costly resources – in the public's interest
- Use capital funds, not operational
- Economic development – retain or add businesses and residents (for cities/counties)
- Increase competition among service providers– new entrants (St. Cloud)
- Lessen the digital divide (if offering services to end users)

Ownership Models

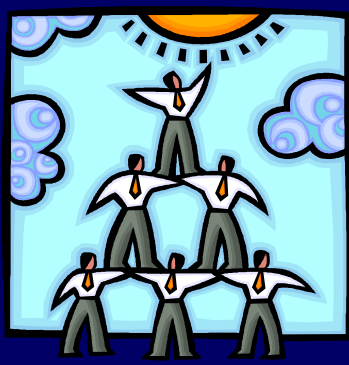
- One primary owner, with “add on” entities each buying own segment(s)
- Primary owner builds whole system and sells fiber to others
- Primary owner builds system and leases fiber to others
- Primary owner leases bandwidth to others (can be complex)
- Joint Powers Agreement/Agency (JPA)



Getting Started



- Find a “champion”
- Create internal excitement and support
- Understand benefits to potential partners
- Approach other entities at several levels
 - City Councils/County Boards
 - Chief Administrators
 - IT Department heads/CIOs
- Explore technology options and routes
- Estimate costs
- Get internal go-ahead



Potential Partners

■ Cities

- Needs: building connections, more Internet bandwidth, mobile users (public safety, inspectors, public works, etc.)
- Assets: water towers, city street rights-of-way

■ Counties

- Needs: county buildings, courthouses, libraries
- Assets: Radio towers, county roads ROW

■ Technical and Community Colleges

■ Non-profit organizations



Justifications for Partnering



- Many agencies/entities have same needs
- Sites remote from one entity may be close to another
 - A route you need to get to your schools may pass by sites of other entities and vice versa
- May be able to “trade” rights-of-way for permit fees
- Can split or share costs for maintenance

Funding Mechanisms

- City & County
 - Debt (bonds)
 - Utility
 - Economic Development
 - Lease/Purchase
 - Internal Borrowing
 - Source(s)
 - Operating Capital



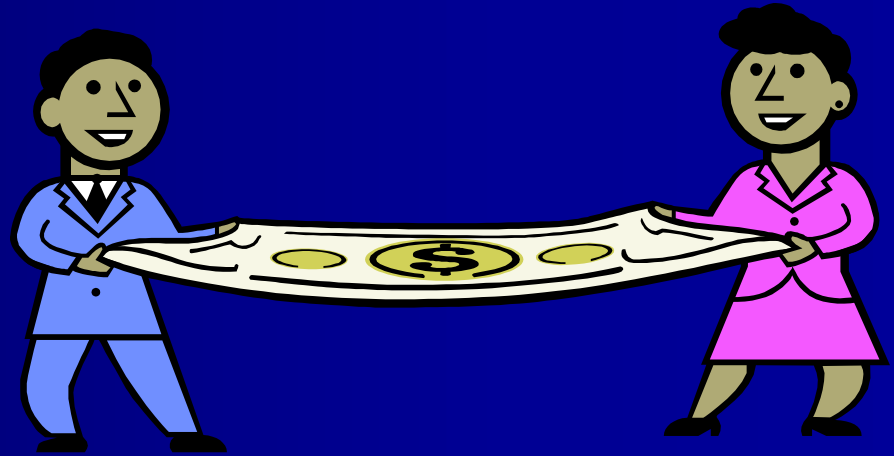
Funding Mechanisms

- Private

- Providers
- Developers

- School Districts

- Debt (referendum)
 - Capital Projects
- Lease Purchase (no referendum)
- E-Rate



Case Study – ISD 196 et al

- Rosemount-Apple Valley-Eagan: 2nd largest district in Minnesota
- How did it come together?
 - Started as a district-only project (bond funds)
 - Dakota County wanted in – history of collaboration
 - With 196 permission, E&A contacted other entities
 - Many interested parties



ISD 196 Partners

- Dakota County (3 sites)
- Dakota County Technical College (Rosemount)
- State of Minnesota –Zoo
- City of Apple Valley (10 sites)
- City of Eagan (3 sites)
- City of Lakeville (2 sites)
- City of Burnsville (1 site)
- ISD 194 (Lakeville) – fiber interconnect
- ISD 192 (Farmington) – fiber interconnect



ISD 196 - Steps in the Process

- Designed route (all fiber)
- Created base bid and specifications for district
- Created partnership agreements (not JPA)
- Other entities' sites/routes were included as Add Alternates
- Many interested vendors
- Awarded to best overall offer (incl. maintenance)
- Partner entities decided whether they were "in"
- Build out started Summer 2005



Case Study - St. Cloud

- City was driver – needed to connect several sites
- Joint Powers Agency created
- Funded by bonds
- City had extra conduits put in place – sold some to communications companies
- Initially shared data network – then separated due to differences in security needs
- Continues to expand to add'l sites



Questions and Answers



Contact Information

Craig Rapp
Springsted, Inc.
651-223-3072
Craig.Rapp@springsted.com

Wendy Chretien
Elert & Associates
651-705-1227
Wendy.Chretien@elert.com



Thank You!