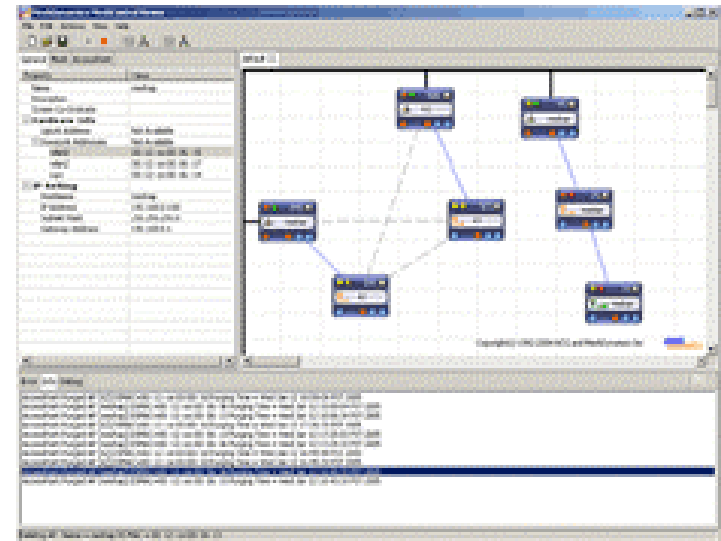


**Why Structured Mesh™
Is Needed For
Dense City-wide WiFi and VoIP**

*Wi-Fi Planet Presentation
Baltimore, June 2005*

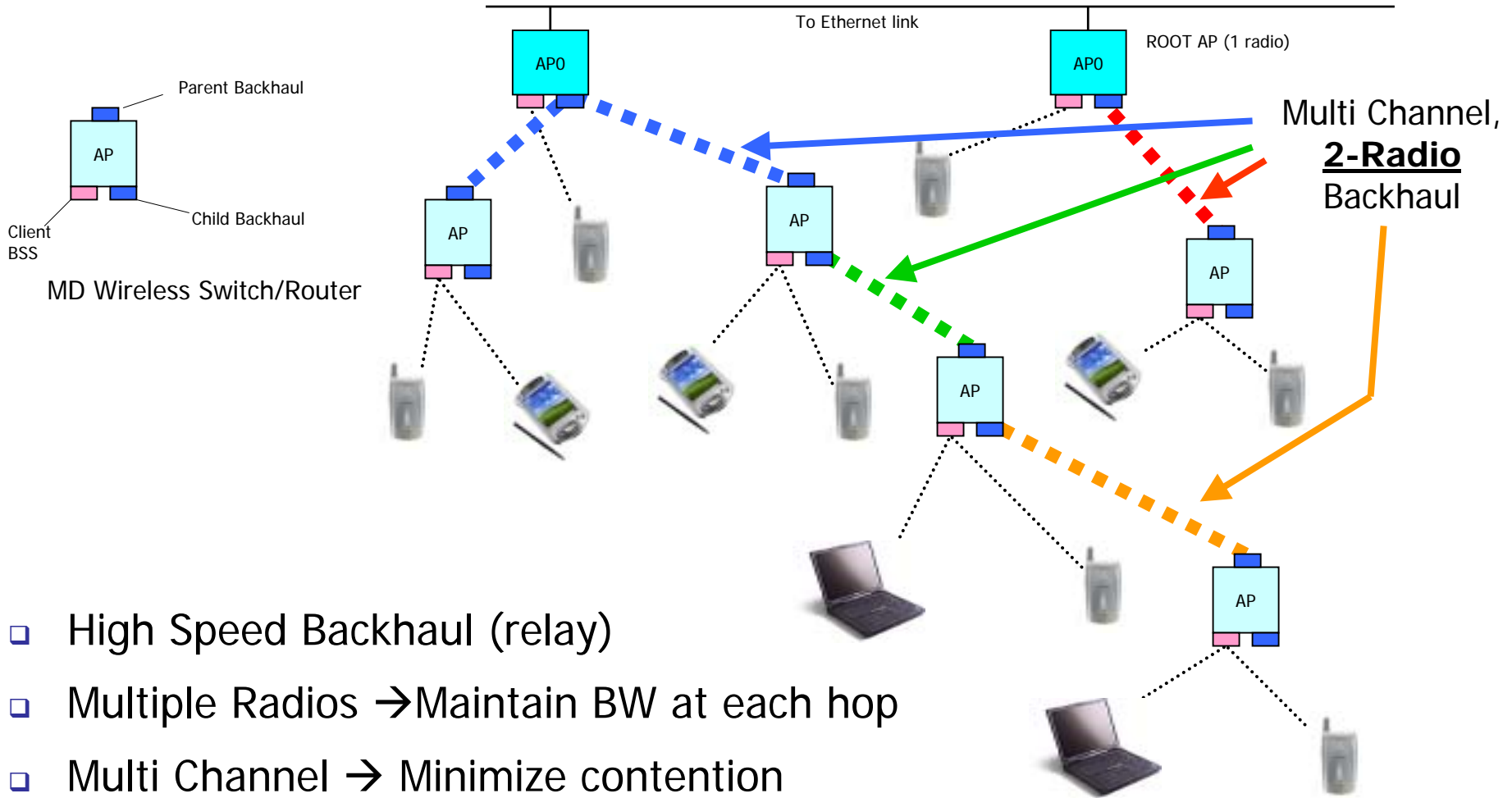


- ❑ Founded 2002
- ❑ Location Santa Clara, CA
- ❑ 3-Radio system launch Jan 2005
- ❑ **Structured Mesh™ technology ***
 - Multi-radio relay (backhaul)
 - Multi-channel relay
 - Automatic channel selection
- ❑ Target markets
 - City-wide HotZones
 - Public Safety (VOIP and video surveillance)
 - Military (VOIP and Video surveillance)
 - VOIP as cellular alternative



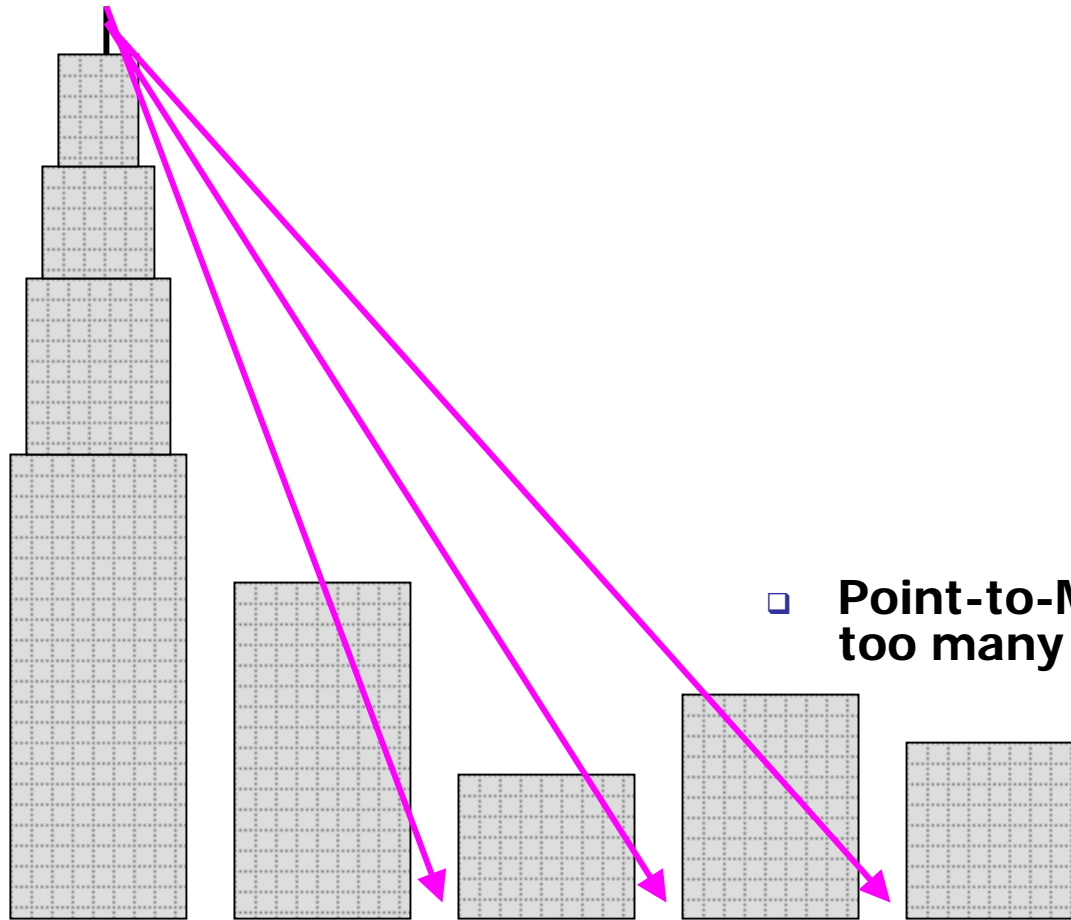
Multiple Radio Structured Mesh™ Module

* Structured Mesh is a trademark of MeshDynamics, Inc.



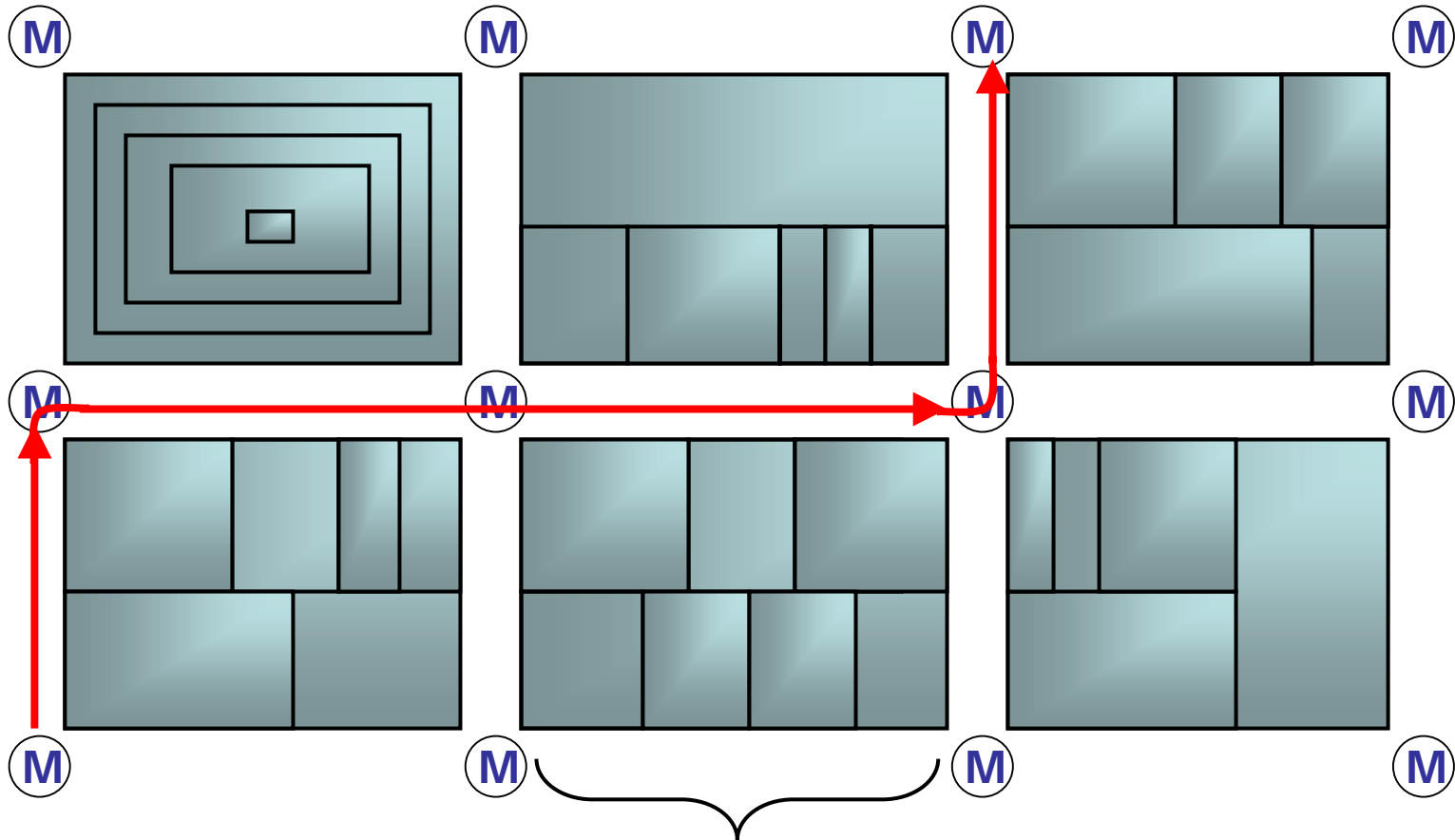
- ❑ High Speed Backhaul (relay)
- ❑ Multiple Radios → Maintain BW at each hop
- ❑ Multi Channel → Minimize contention
- ❑ Automatic Channel Selection

- For ubiquitous VoWiFi at street level, Mesh is the only way



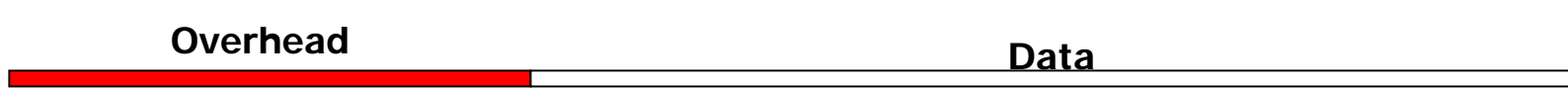
- **Point-to-Multipoint has too many blind spots**

- “Concrete Canyon” coverage requires a mesh node at every intersection



- Short range → Typical city block is 300-500 ft.
- Mesh must support many hops

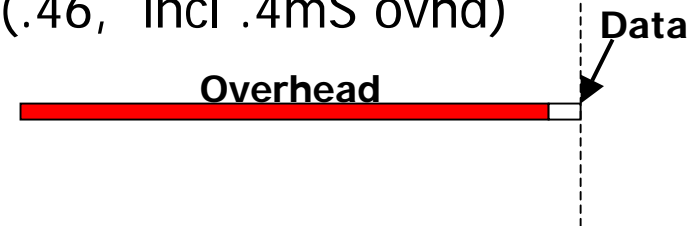
- Typical Data Packet = 1500 bytes (1.44mS, incl .4mS ovhd)



- VoIP Packet (G.711 Codec) = 230 bytes (.56 mS, incl .4mS ovhd)

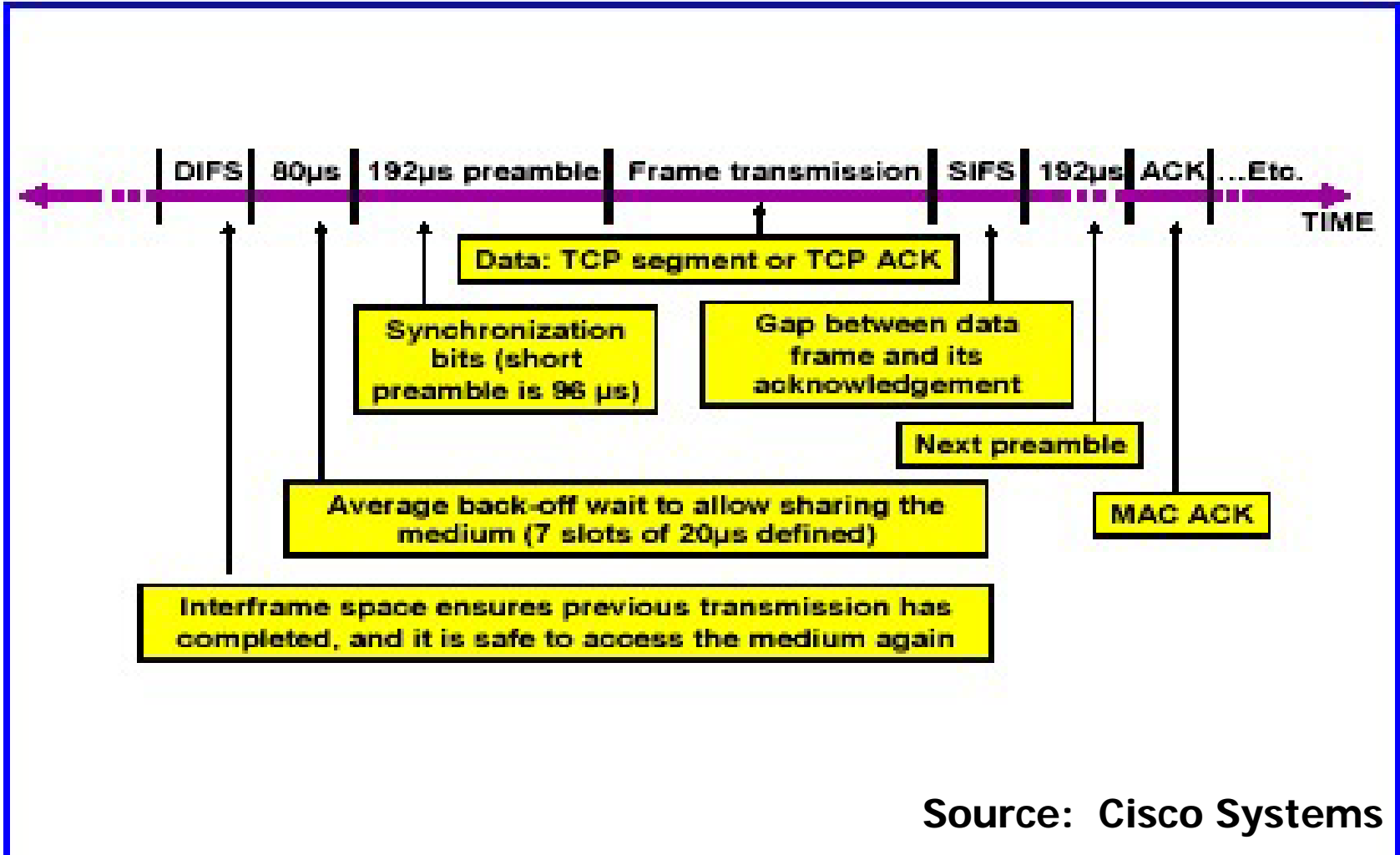


- VoIP Packet (G.729 Codec) = 90 bytes (.46, incl .4mS ovhd)



- **Mesh backhaul path must have capacity over many hops to support large quantity of inefficient packets.**

- VoIP packets compete for transmission in 20mS window



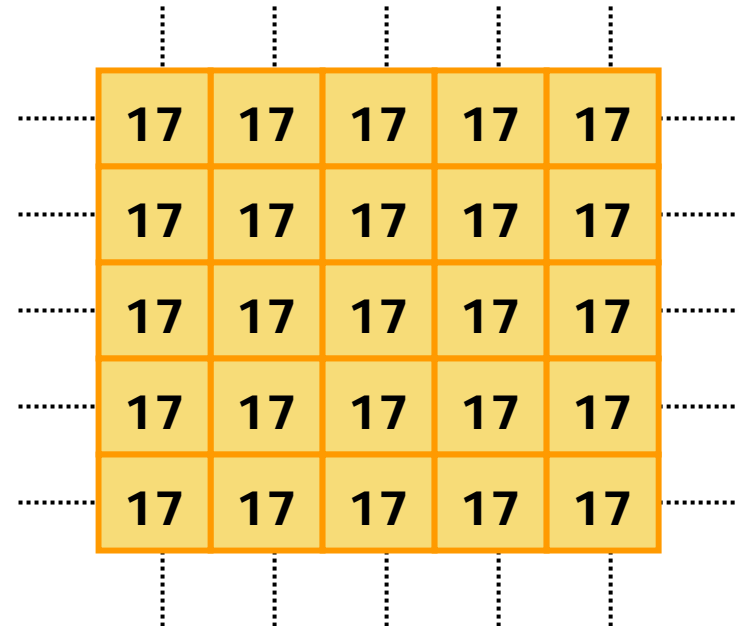
System Delivers:

- ❑ 17 simul conv/node
- ❑ 425 simul conv per 25 sq blocks
- ❑ **Cost-per-minute-per-user = 100x over cellular**
 - 0.05 cents for Structured Mesh
 - 5 cents for cellular

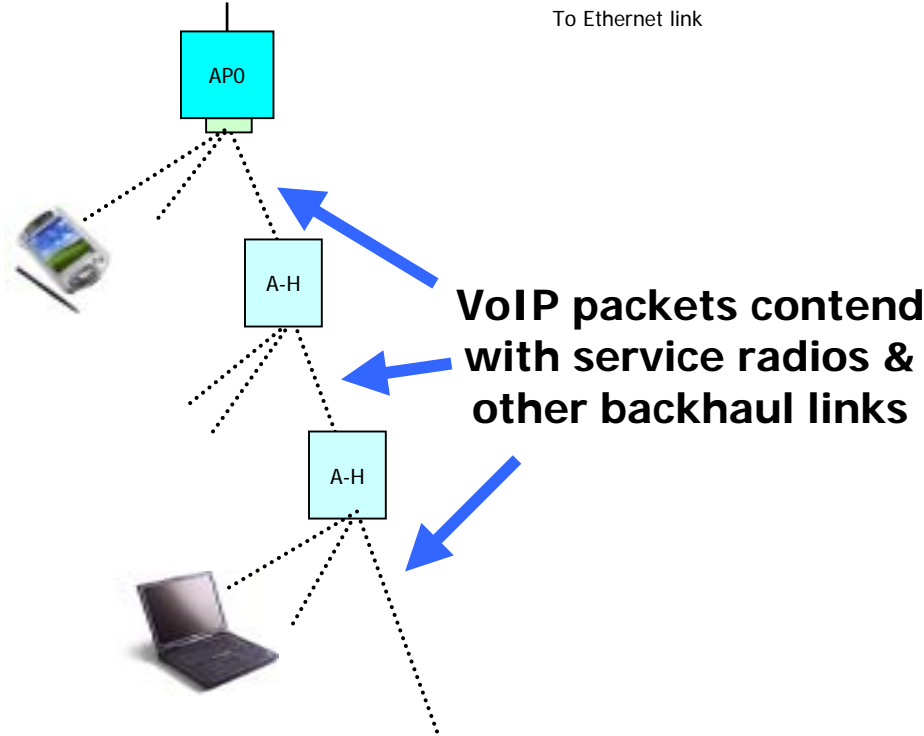
425 simultaneous VoIP conversations

G.729 8Kb Codec

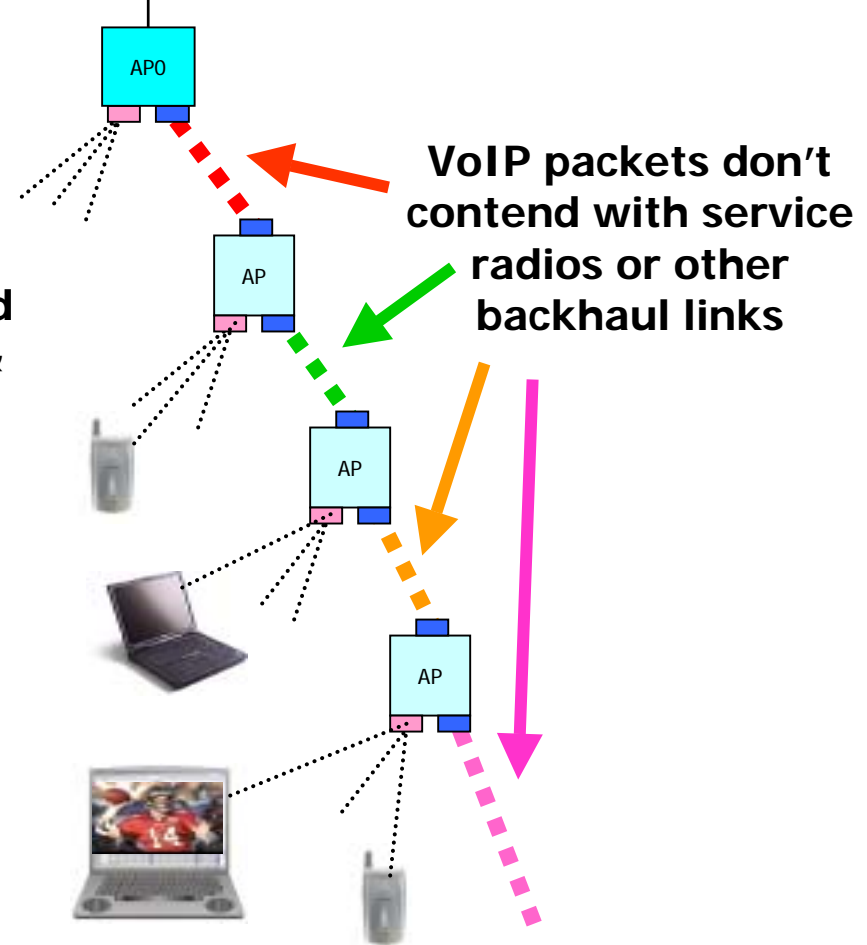
802.11b service radio



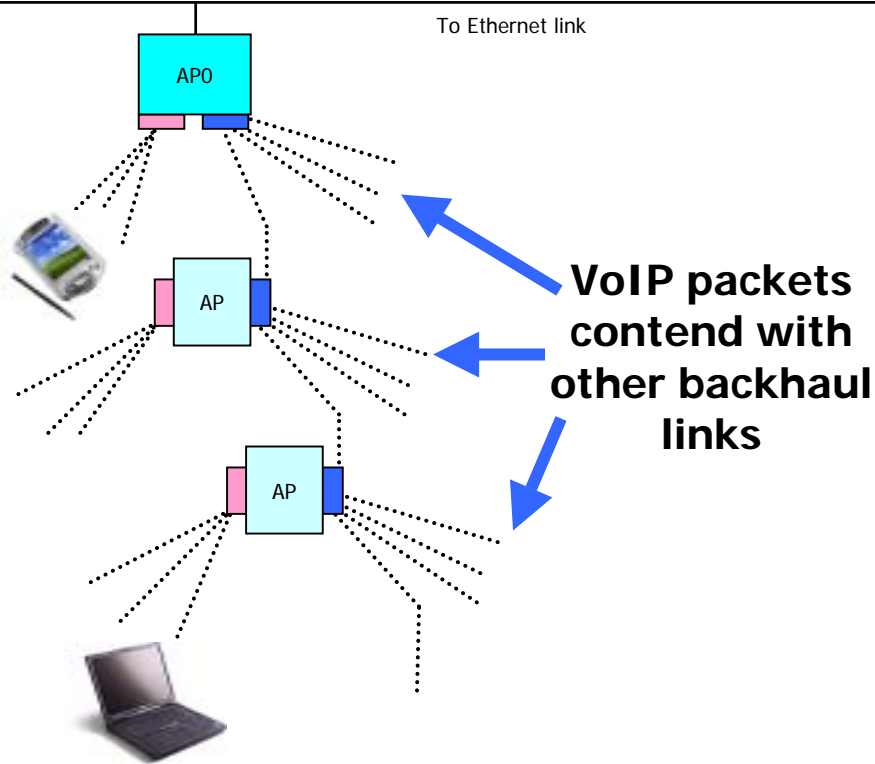
1-Radio Ad Hoc Mesh



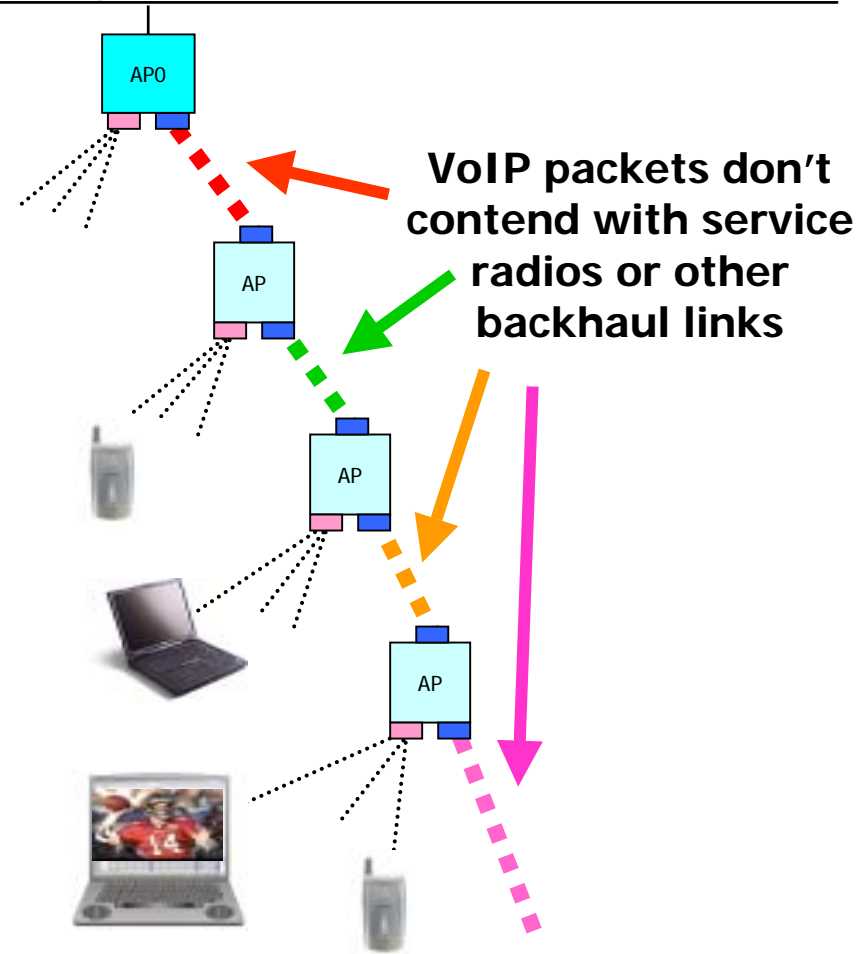
Structure Mesh™ with Multi-Radio, Multi-Channel Backhaul



"1 + 1" Mesh



Structure Mesh™ with Multi-Radio, Multi-Channel Backhaul



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