



Interdisciplinary Research on Wireless Networking

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who we are and what we do

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“Multidisciplinary” Training



- BS in Applied Mathematics
- MS in Operations Research & Control Theory
- PhD in Computer Science



Evolution of My Research



- **Pure Theory**
 - Steiner tree, combinatorial group testing, etc
- **Applied Theory**
 - Optical networking
 - Wireless networking

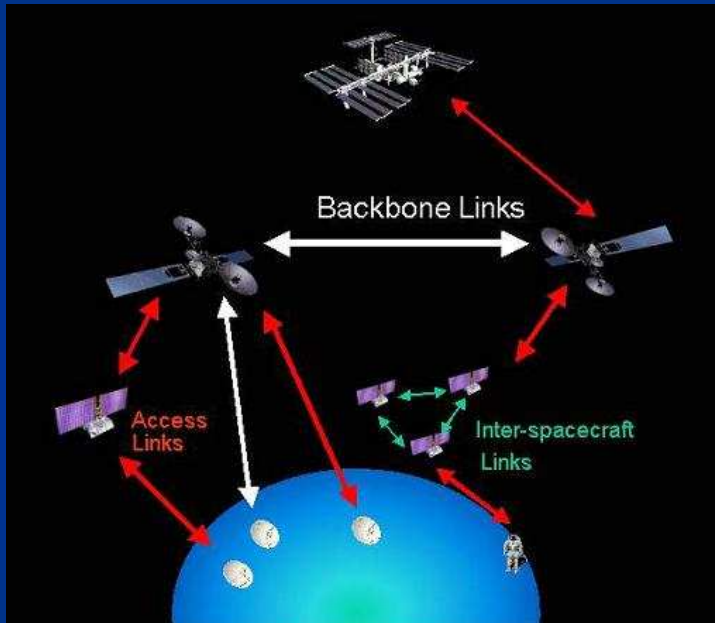


Cellular Networks





Satellite Networks

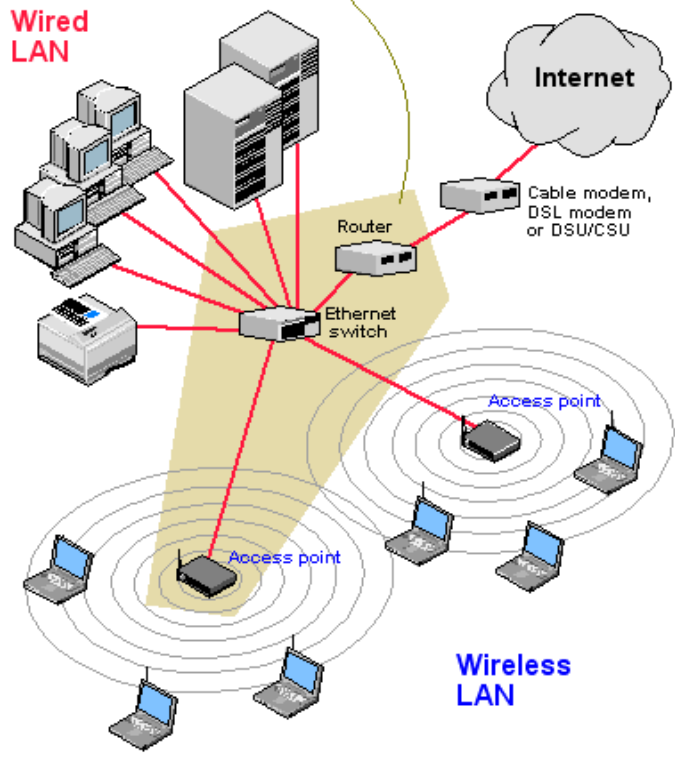




Wireless LAN

From Computer Desktop Encyclopedia
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In a "wireless router," the router, a switch and one access point are built into one box.

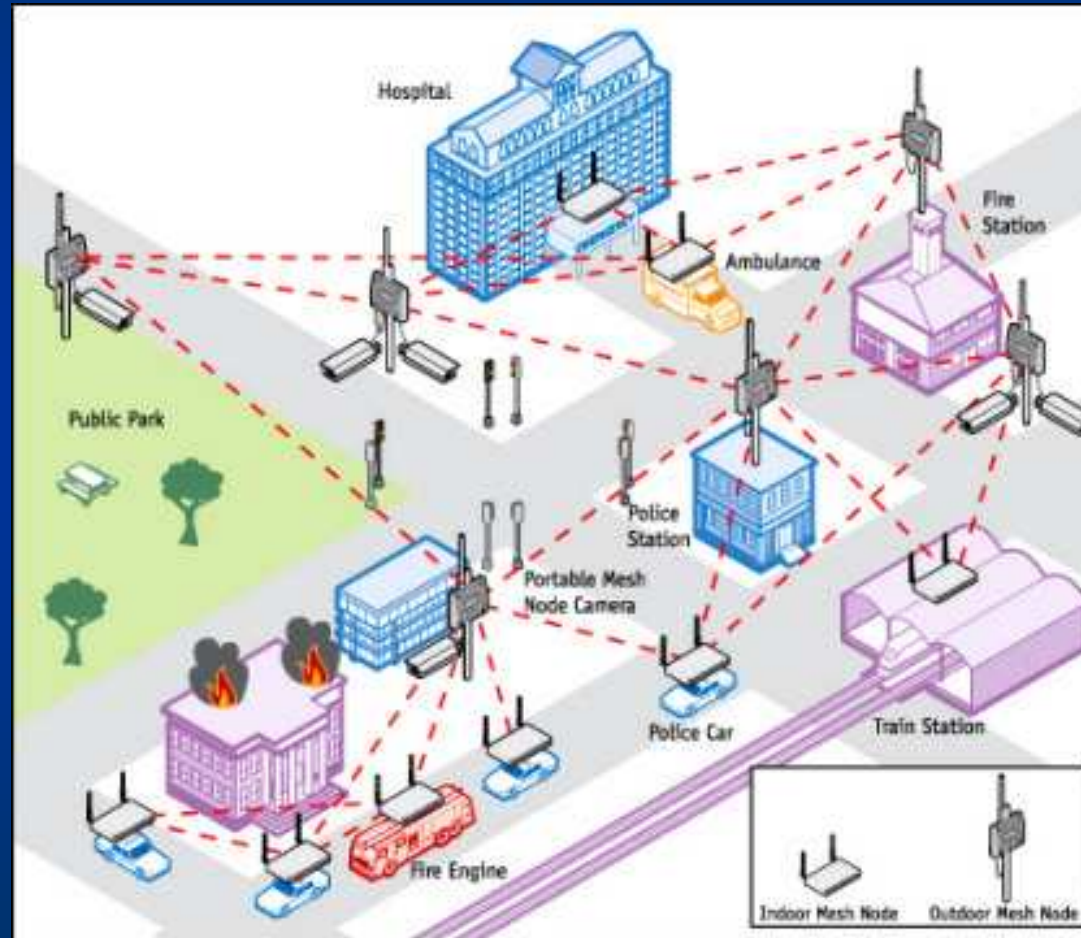


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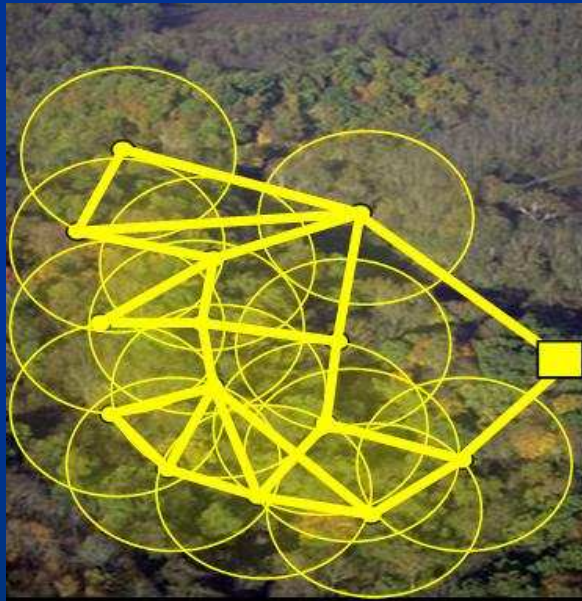


Wireless Mesh Networks





Wireless Sensor Networks





Active NSF Projects on Wireless Networking



1. Multicommodity Flows in Multihop Wireless Networks,
9/1/2008 – 8/31, 2011
2. Minimizing Communication Latency with Multiple
Channels And Radios in Multihop Wireless Networks,
9/1/2009 – 8/31, 2012



Interdisciplinary Research on Wireless Networking



- **Computer Science and Engineering**
 - Approximation algorithms
 - Queuing system and networking
- **Mathematics**
 - Geometry
 - Probability and statistics
 - Stochastic processes
- **Physics**
- **Chemical / Biochemical / Mechanical /... Engineering**



Student Advising



- 6 graduated PhD students
 - 5 in academia
- 4 ongoing PhD students
- 3 of them had BS and/or MS in mathematics



Teaching



- CS547: Wireless Networking
- CS 595: Approximation Algorithms
- Also CS555, CS 455



Thank You



Questions ?