Welcome & Introduction

IAB/Research Review

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Rutgers University

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Welcoming Remarks

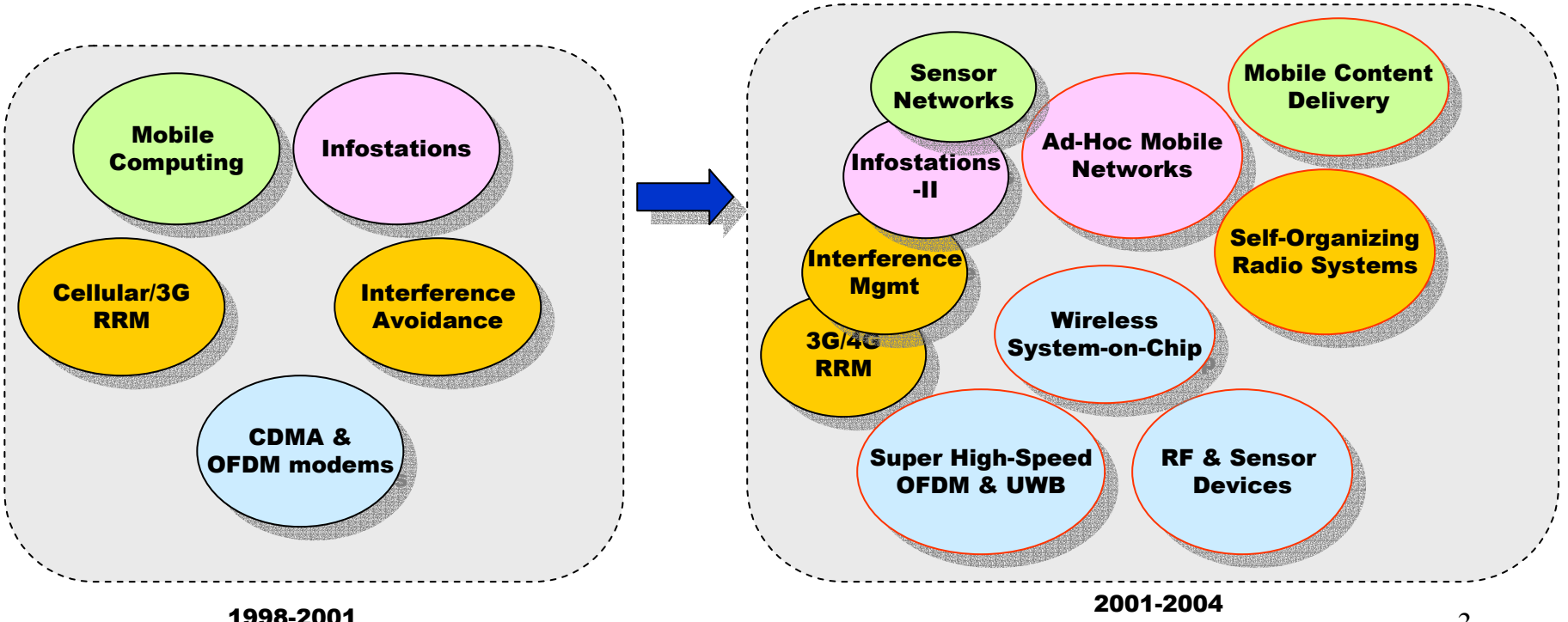
- WINLAB welcomes attendees of our Spring 2002 Research Review and IAB Meeting

- This has been an exciting academic year at WINLAB...!
- Expanded research scope, increased faculty/staff, new labs, new research initiatives ("focus projects")

- First detailed report on new activities at this review meeting:
  - Area reviews (...today morning)
  - Technical talks (...today afternoon)
  - Lab demos (...after area reviews)
  - Strategic plan update (...at tomorrow's IAB mtg)

Introduction: WINLAB's Research Direction

- Migration from 2G/3G cellular data networks towards the vision of a more heterogeneous, scalable and self-organizing mobile Internet…
- Increasing use of experimental methods and hardware/software prototypes…



Introduction: Core Research Areas

Basic Radio/ Modem Technology

- RF & sensor devices, high-speed modems & wireless SoC design/test

Radio Resource Management & Wireless Systems

- RRM & interference issues in 3G and WLAN systems, migrating to heterogeneous and ad-hoc radio

Mobile Network Architecture & Protocols

- Hierarchical, self-organizing wireless networks for WLAN+, sensors and future 4G

Mobile Computing Middleware & Applications

- Sensor network applications and context-aware mobile apps, migrating to pervasive computing

Introduction: WINLAB Focus Projects

- Several focus projects under way, including 3 initiatives started during AY'02-'03
- Most involve partnerships, multidisciplinary research

ongoing projects

- FreeBits (...NSF ITR project, '00-'02)
- NJ Center for Wireless Comm (NJCST project, '01-'03)

recently awarded

- Dynamic spectrum management (NSF ITR project, '02-)

pending proposals

- Multimodal Sensor-on-Silicon: MUSE (NJCST finalist)
- Ultra Wideband (UWB) Radio (Intel, DARPA..)

Introduction: New Faculty/Staff

- Several key faculty and research appointments during this period (10/01-5/02):
- Prof. Mike Bushnell
  - ECE faculty member with world-class VLSI research program
- Dr. Larry Greenstein (…formerly with AT&T)
  - Internationally renowned expert on radio propagation
- Dr. Max Ott (…on part-time leave from Semandex)
  - Expert on distributed systems/networking
- Dr. Leo Razoumov (…formerly with Qualcomm)
  - Senior researcher with expertise on high-speed data in 3G
- Dr. Kemal Tepe (…formerly with Telcordia)
  - Research experience in WLAN security

Introduction: New Faculty/Staff (contd.)

- Several adjunct appointments as well during this period (10/01-5/02):
- Dr. Paul Henry (AT&T Labs)
  - wireless and optical device technologies
- Dr. Binay Sugla (ISPSoft)
  - network management software, new ventures
- Dr. Sudhir Aggarwal (Lucent Bell Labs)
  - networking and distributed systems
- Dr. Chang-Wen Chen (Sarnoff)
  - MPEG, wireless video

Introduction: New Labs

- WINLAB is in the process of establishing two new labs:

lab currently operational

- Mobile Networks (MobiNets) Lab, CORE Bldg 5th floor
  - Linux-based open-architecture routers, access points, forwarding nodes, sensor nodes, etc.
  - Projects on WLAN enhancements, self-organizing network protocols, Infostations caching, mobile content delivery,...

lab under development

- Sensor-on-Silicon (MUSE) Lab, CORE Bldg 5th floor
  - ZnO device testing, RF/MEMS components, mixed-signal design/test, low-power design,..
  - First system project aimed at MUSE chip prototype with ZnO-based sensor/RF & low-power 802.11b-

Introduction: New Sponsors

- WINLAB welcomes two new sponsors with strong technology/product positions and strategic wireless R&D interests...
  - Intel Research
  - Agere Systems

Introduction: Today's Agenda

5/20 Research Review Agenda Highlights:

- 9:00-11:30: Area Reviews (Fiber Optic Auditorium)
  - overview of each research area by lead faculty
- 11:30-12:30: Lab demos/tours (CORE Bldg)
  - MobiNet lab demos, sensor lab tour
- 12:15-1:30 Lunch (Busch faculty dining hall)
- 1:40-5:00: Technical talks (Fiber Optic Auditorium)
  - talks on specific research projects
- 5:00-6:30: Lab tours (contd.) & poster session
  - RF/modem lab tour, student project posters
- 7:00-: Dinner (Rutgers Club, NB Campus)