



PRESENTS

**NETWORLD INTEROP**



# The flash-OFDM™ Solution for Mobile Broadband

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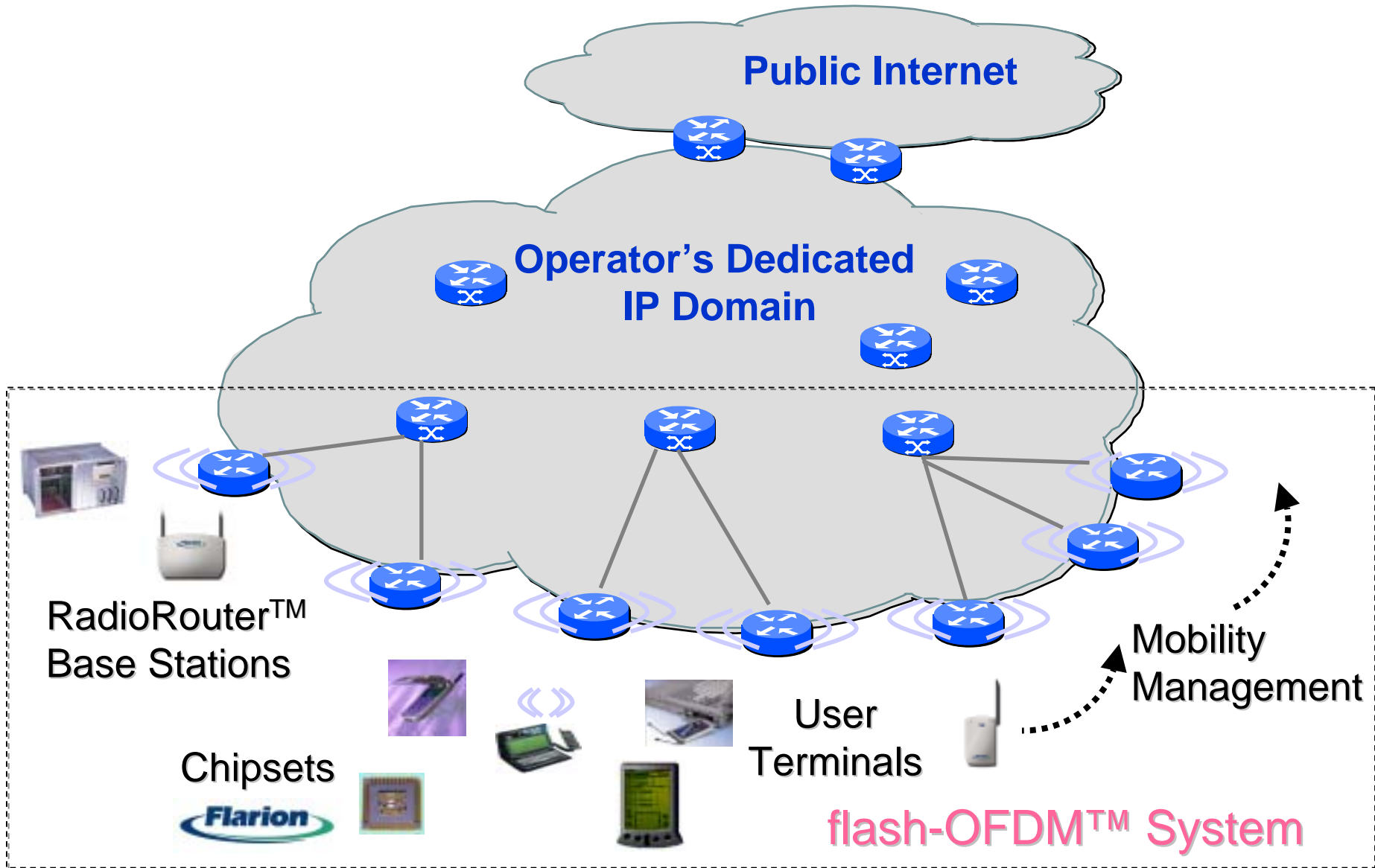
Future Watch: The Need For Speed

September 12, 2001

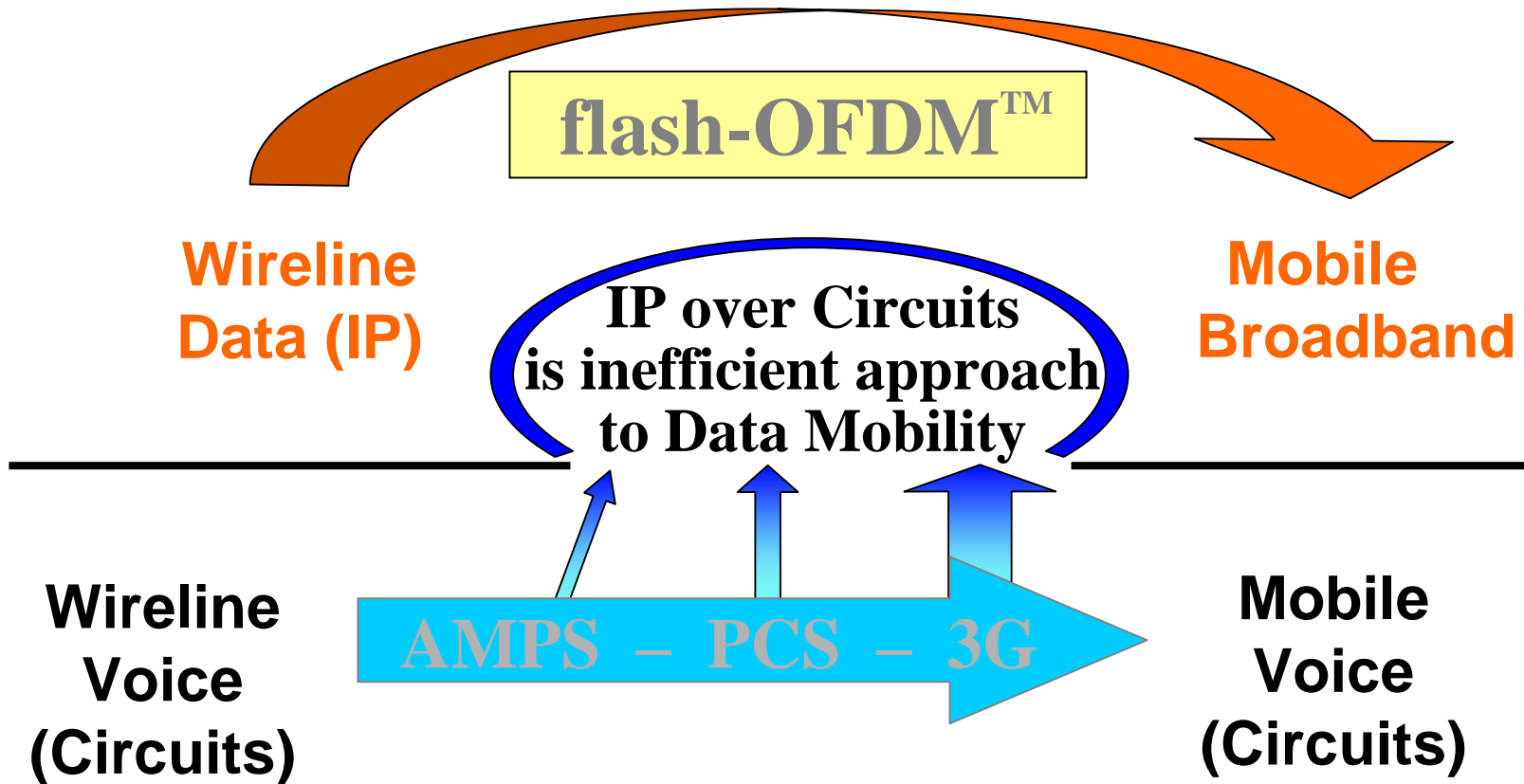


# Where We Fit:

## A Seamless Extension to the Internet



# The Genesis of flash-OFDM™



# flash-OFDM™ Advantage

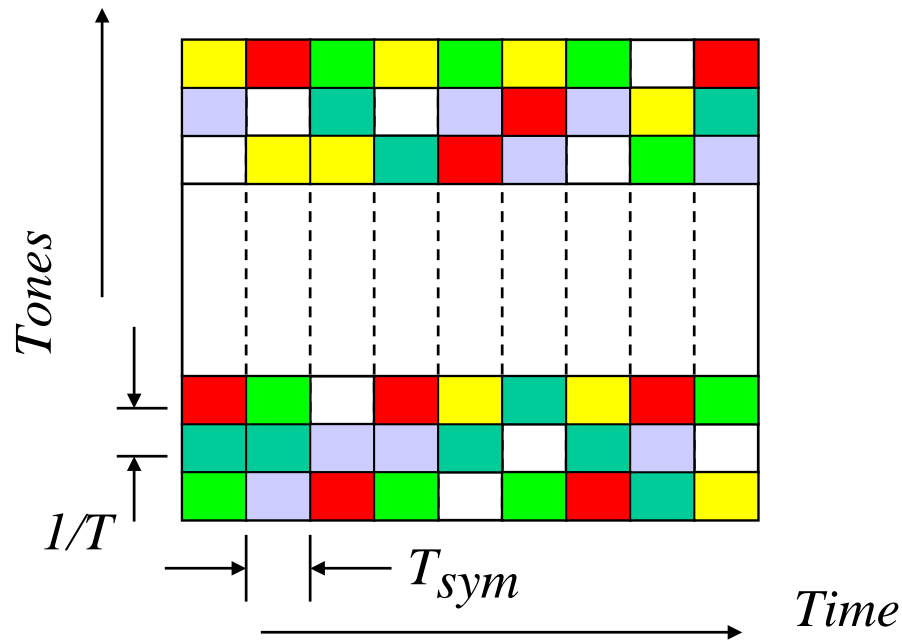
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- **Circuit switched systems**
  - create fat pipes (physical layer)
- **Packet data systems**
  - create fat pipe (physical layer)
  - share pipe efficiently between users (MAC layer)
  - create reliable links for data (link layer)
  - send packet data over links (higher layers)

# flash-OFDM™

## Physical Layer Advantage

- High-speed downlink and uplink based on OFDM
  - orthogonal (no in cell interference)
  - no equalization for multipath delay-spread

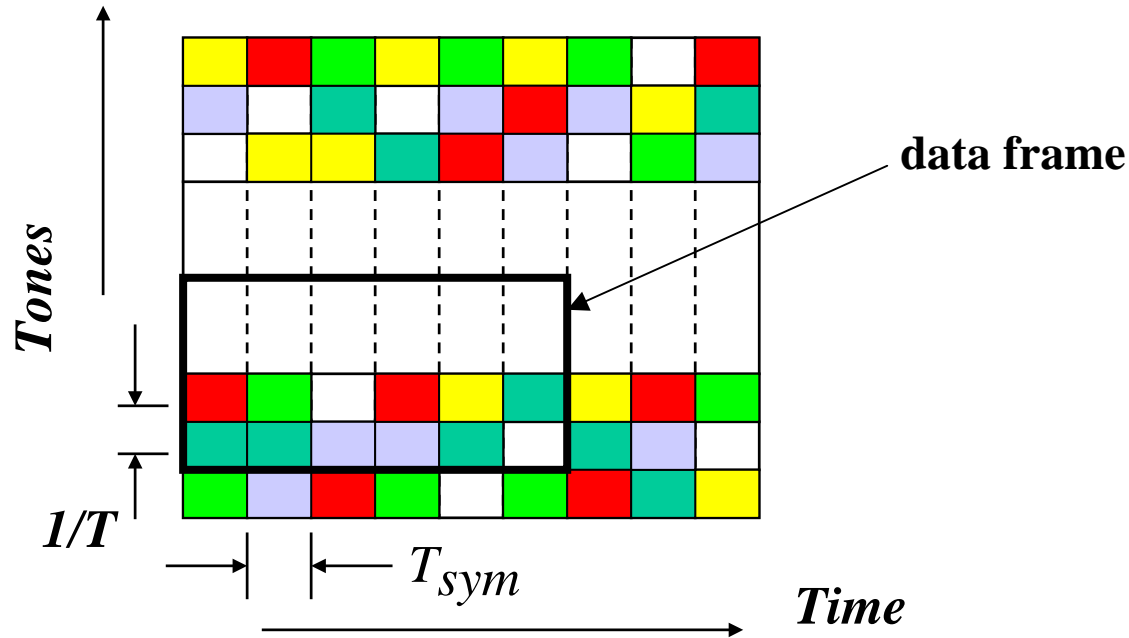


- Fast hopped --- spread spectrum

# flash-OFDM™

## MAC/Link Layer Advantage

- OFDM granular resource partition



- No overhead control messaging
- Data as frames

# flash-OFDM™

## MAC/Link Layer Advantage

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- Fast ARQ and retransmission over airlink
  - less than 5 msec ARQ loop time
  - with 20 msec delay transmit a data frame up to 5 times
  - higher spectral efficiency

### Interactive data

- Uplink transmission requests
  - no contention based access
  - uplink/downlink data frames scheduled by RadioRouter™
- Large number of active users

### QoS over airlink

# flash-OFDM™

## Higher Layer Advantage

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- Reliable link
  - far fewer end-to-end retransmissions
- Low delay
  - efficient transport layer (TCP/IP)
  - higher burst rates meaningful
  - interactive applications supported (VoIP)
- Enhanced Mobile IP for hand-off
  - True make-before-break with no soft-handoff
  - IP to the RadioRouter™
  - reliable seamless handoffs

**Better user experience**



# flash-OFDM™

## System Advantage

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- Transmit antenna and multi-user diversity
- Autonomous RadioRouters™
  - no common timing reference (no GPS)
  - no need for frequency or code planning
  - no knowledge of neighboring RadioRouters™
- Scalable, flexible architecture
- Lower cost:
  - system planning
  - system deployment
  - maintenance

**Highest bits/Hz/\$**

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***Every Bit Wireless™***



*[www.flarion.com](http://www.flarion.com)*