

Seattle Metro and Mobile Routers



**APTA Fare Collection Workshop
March 2011**

Presentation Overview



- ORCA fare collection system
- On-board systems project
- On-board integration
- Role of the mobile router

ORCA Fare Collection System



- 7 Agencies
- Regional fare products
- Ferry, bus, light rail, commuter rail
- 255,000 Average weekday ORCA boardings

Status



- Contract with ERG signed April 2003
- Public launch April 2009
- Full system acceptance April 2011
- 10-year Operating contract

On-Board Systems (OBS) Project



- INIT
- Smart bus concept
- GPS/odometer/gyroscope solution
- Stop announcements
- Next stop electronic displays
- Destination sign integration
- Automatic passenger counting
- Vehicle monitoring
- Installs in progress

Business Need for Integration



- Single logon for operators
- Automatic fare zone changes
- Space and power constraints
- Maintenance requirements
- Network infrastructure support
- Multiple hardware and software vendors
- Phased implementation

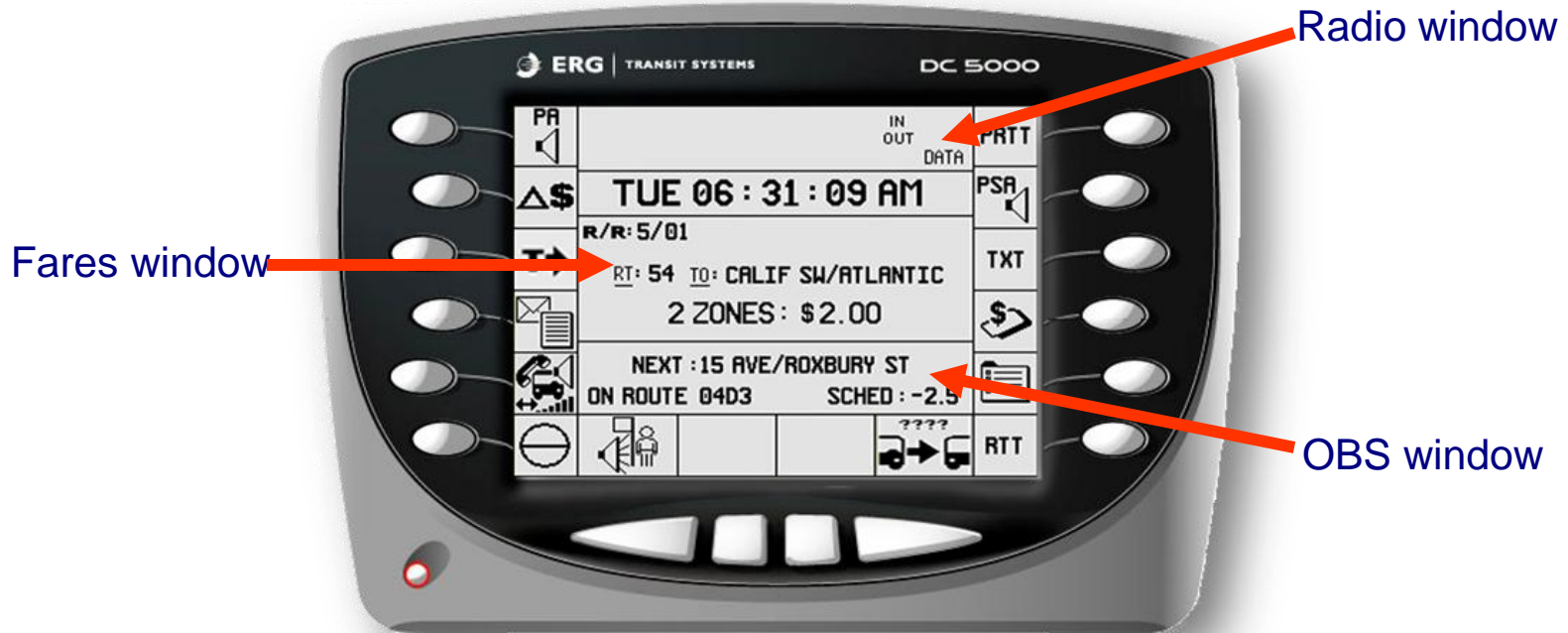
Evolution



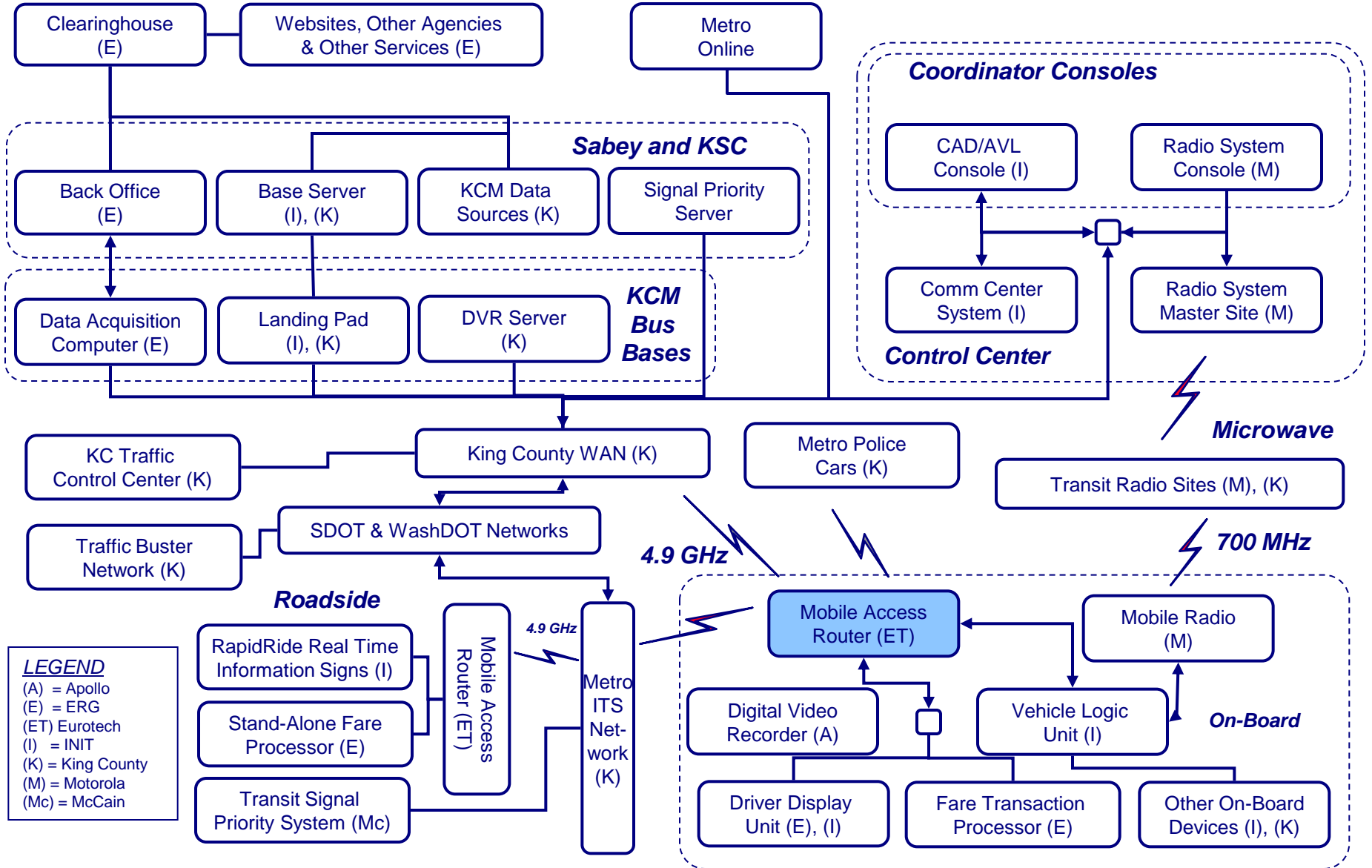
- OBS should have come first but...
- ORCA became the integration platform
 - Driver Display Unit (DDU)
 - Wireless bridge (Cisco 1310)
- Regional requirements and agency-specific requirements
- Migrating to mobile router (MAR)

Driver Display Unit (DDU)

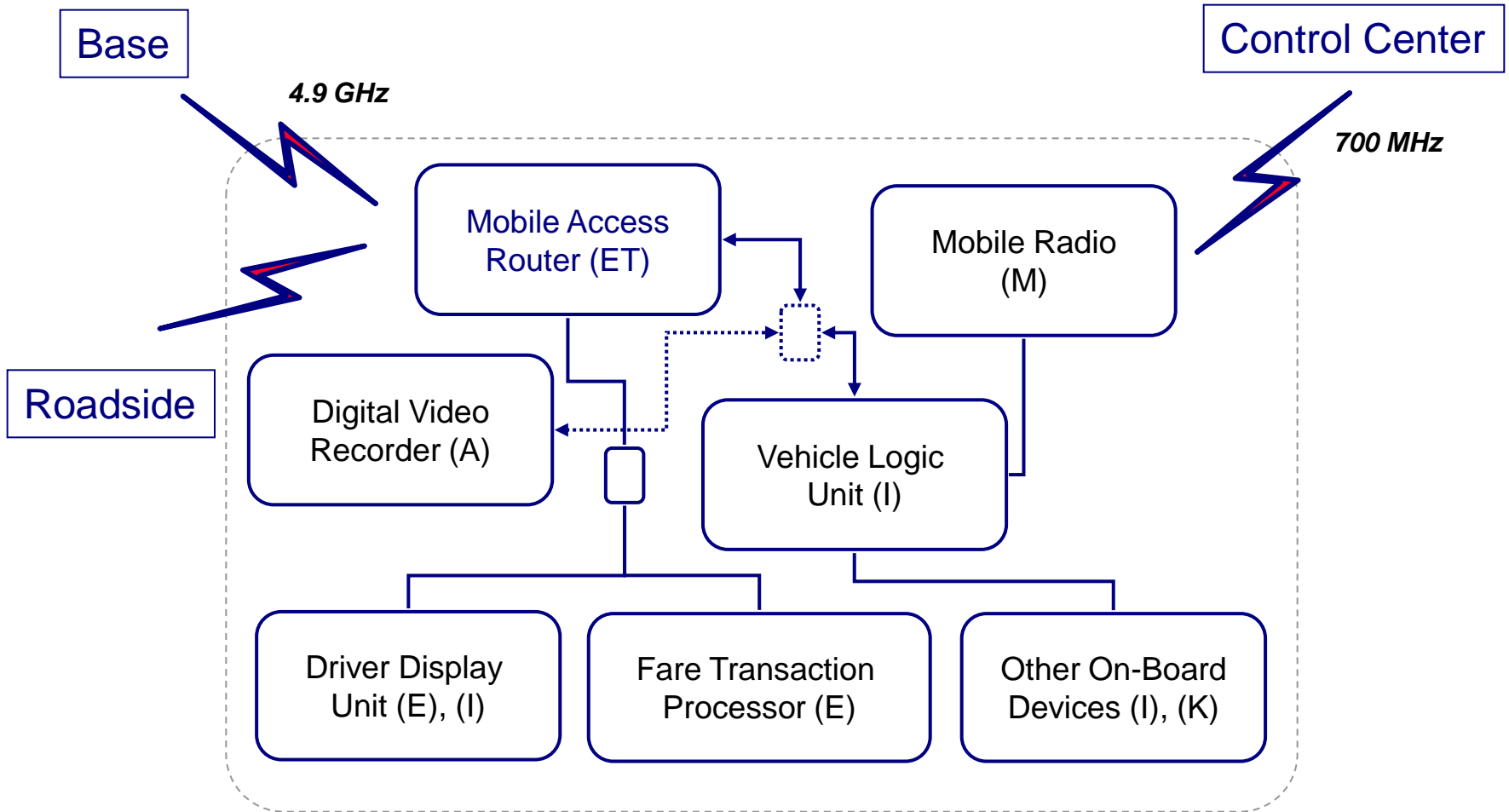
- Window CE operating system
- Software development kit and certification process part of contract



King County ITS Architecture



On-Board Architecture



Mobile Access Router (MAR)



- DuraMAR 2150 from Eurotech
- Configuration data
 - Schedule and trip details – OBS and ORCA need to match
 - Trigger points
 - Announcement text
 - Audio files
- Usage data
 - Fare transactions
 - Vehicle history
 - Schedule adherence
 - Passenger counts

Why a Mobile Router?



- Roaming and reduced authentication time supports TSP
- Licensed 4.9GHz spectrum
- Reduced interference
- Better yard coverage
- Simplified IP addressing
- Migration from in progress