

FIS Implementation

- Implementation
- Operation
- Future Technologies



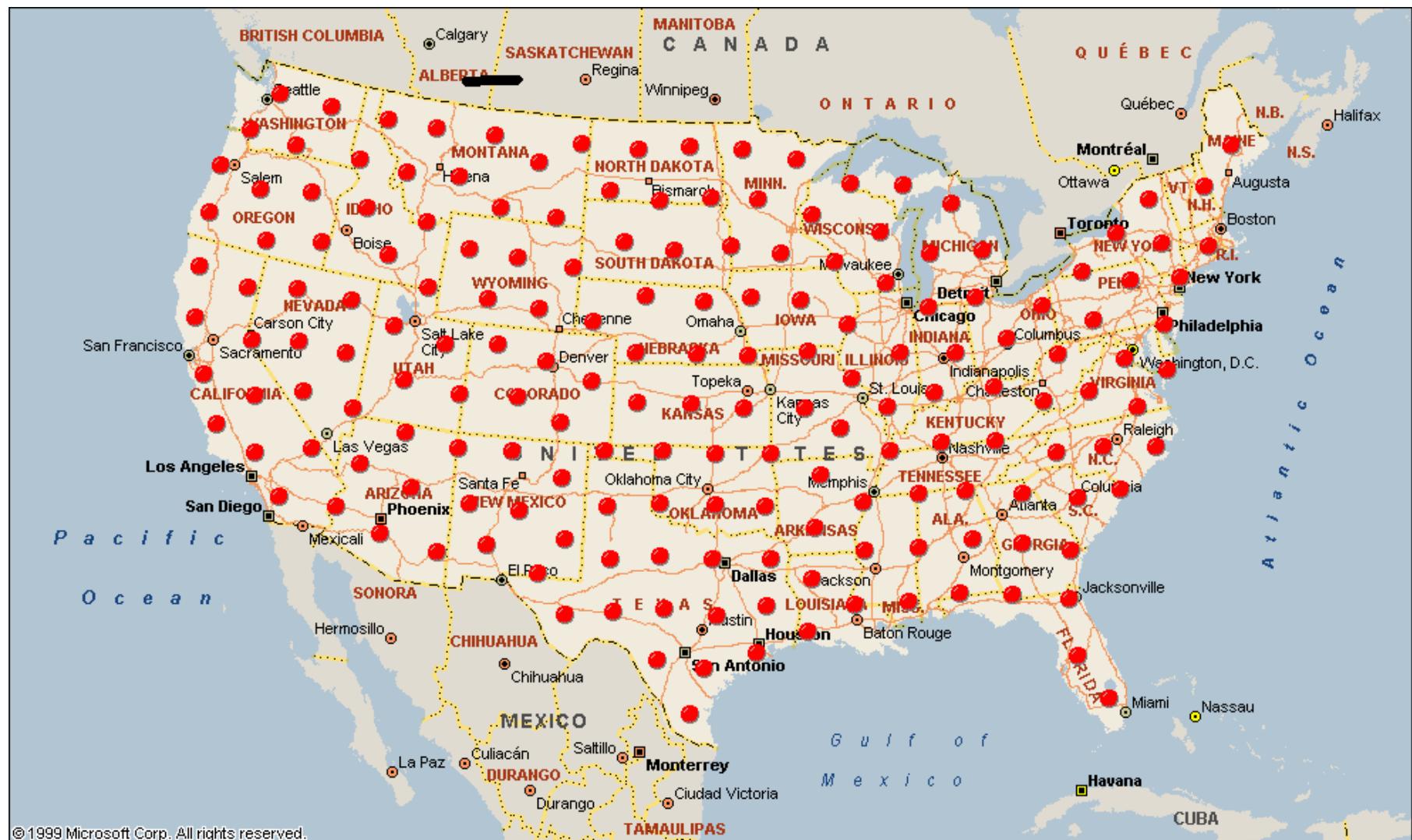
BASIC Products

- METARs
- PIREPs (pilot reports), urgent and routine
- SPECI surface observations
- TAF terminal forecasts
- AIRMETs
- SIGMET
- Convective SIGMETs
- Alert weather watches

Value-Added Products

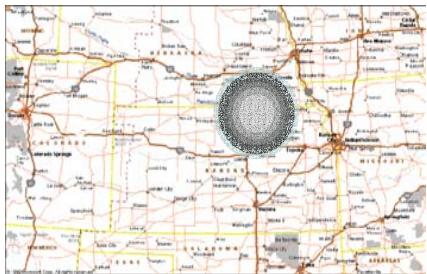
- NEXRAD
- Graphical METARs
- NOTAMs
- Graphical SIGMET and AIRMET display
- NLDN lightning data
- Special use airspace status
- Winds aloft information
- Convective nowcast
- Icing nowcast
- Turbulence nowcast

Preliminary Groundstation Site Map



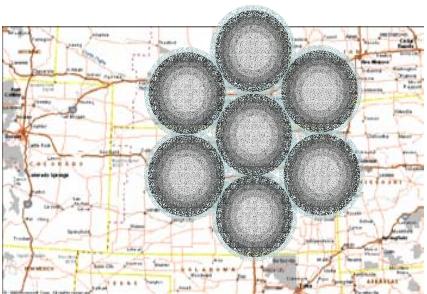
System Integration Efforts

“Turkey”



- “Turkey” Integration (Began in November 2000)
 - 1st End-to-End Integration Testing using Single Cell
 - Hub and Groundstation prototype testing.
 - Terrestrial network prototype testing.
 - Broadcast network RF performance testing.
 - Flight Testing to baseline RF performance
 - RF Propagation Analysis

“Frosty”

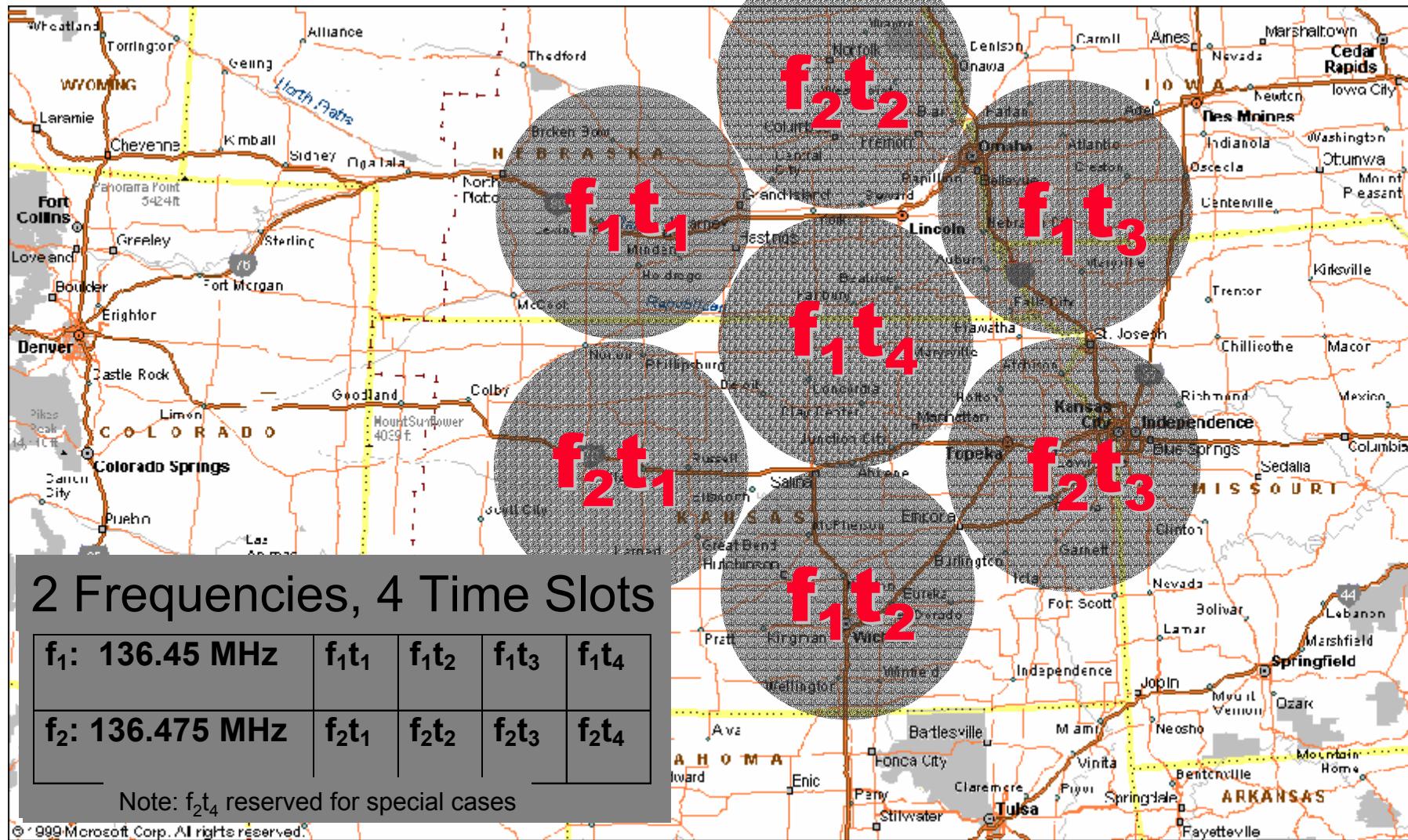


- “Frosty” Integration
 - Phase 1 (Complete Terrestrial Supercell)
 - Validate RF performance / Assess interaction between cells.
 - Test initial product package.
 - Validate terrestrial Wide Area Network (WAN) design and operation.
 - Achieve reliable 7x24 network operation.
 - Blue label VDR / Display tests.
 - Test ground station deployment process.
 - Perform Flight Testing
 - Phase 2 (Business Systems / Network Management)
 - Integrate and test WOC.
 - Subscription / Provisioning process integration and test.
 - Customer interface.
 - Integration of Billing systems.
 - Completion with IOC
 - Perform Flight Testing

FIS Supercell Frequency / Time Slotting

Coverage at 5000 ft AGL

(Smooth Earth propagation model)

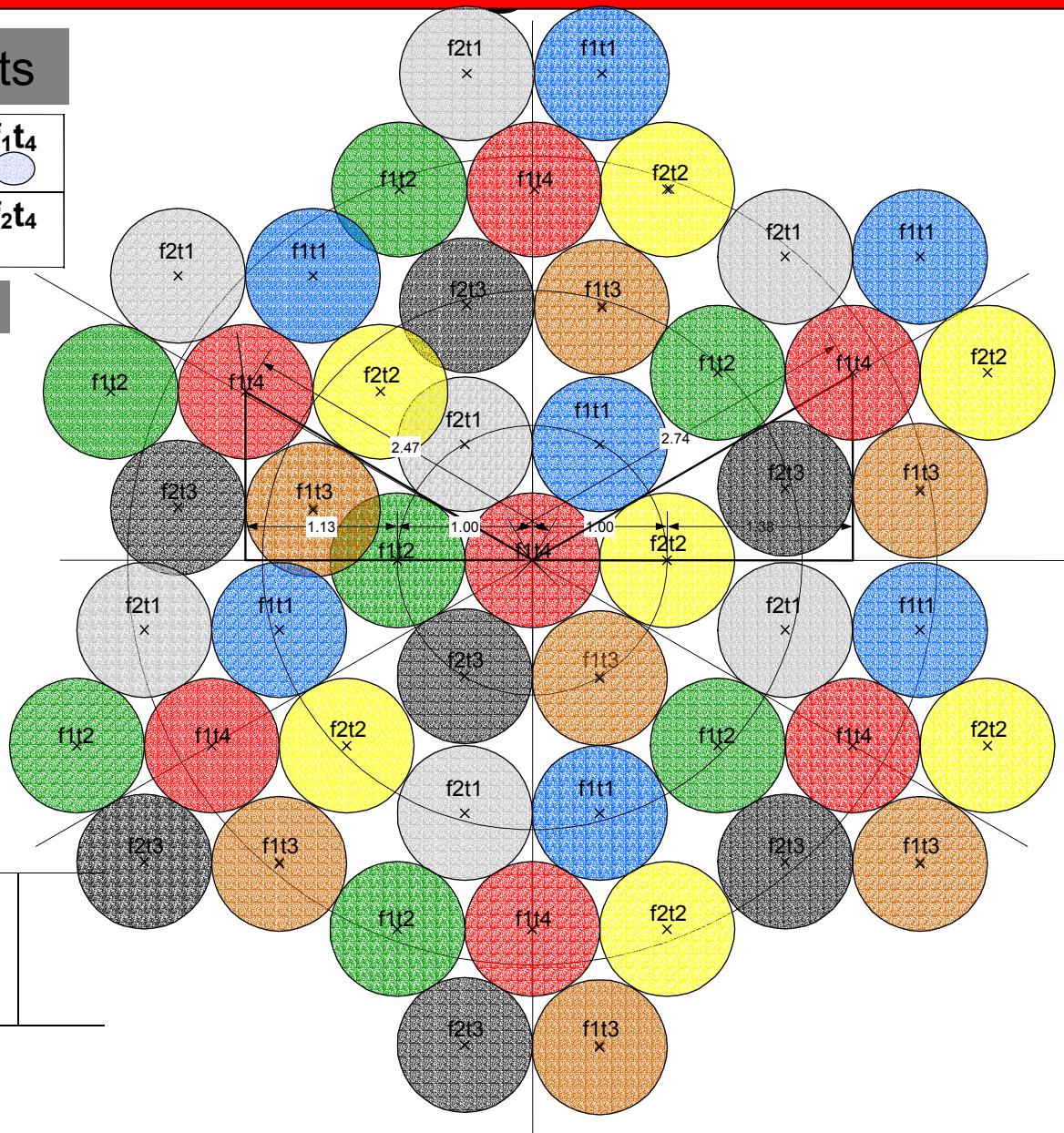


FIS Network Frequency / Time Slotting

2 Frequencies, 4 Time Slots

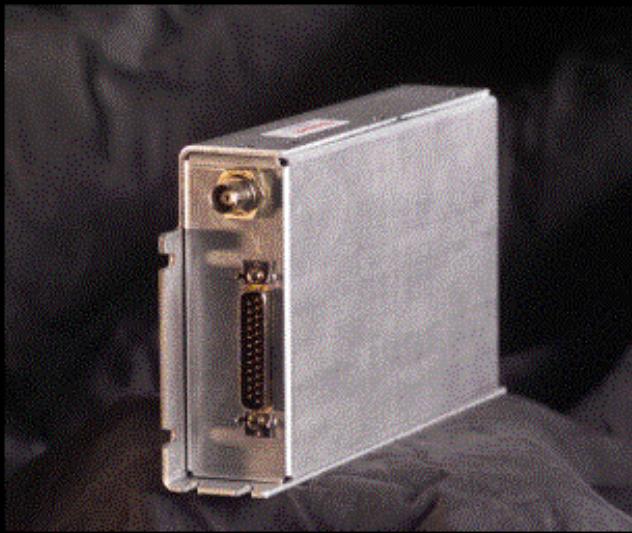
f₁: 136.45 MHz	f _{1t1}	f _{1t2}	f _{1t3}	f _{1t4}
f₂: 136.475 MHz	f _{2t1}	f _{2t2}	f _{2t3}	f _{2t4}

Note: f_{2t4} reserved for special cases





KMD 550 Multi function Display



KDR 510 FIS Receiver



KGS 511 Ground Station

Subscription Control

- Broadcast only system
 - No Handshaking
 - Free products vs Premium products
 - Subscription by year / month
 - Encryption solution

Operation Challenges

- Management of Ground Station Network
 - Network siting stability
 - Maintenance
 - Monitoring
 - Automation of monitoring
 - Logistics
- Manage Comm Link costs

Future Technologies

- Higher level of integration
- Portable Market
- 2 Way FIS