

# Space Data Corporation

## Air-To-Ground Proceeding WT Docket No. 03-103

Gerald Knoblach  
Chairman and CEO

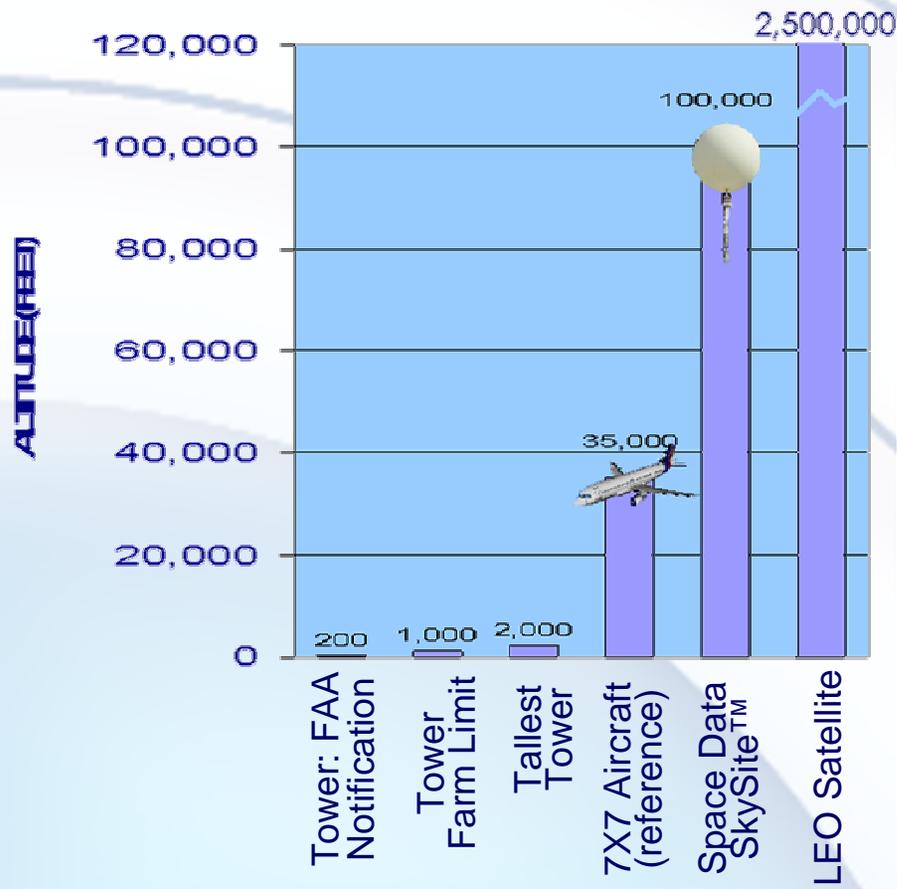
November 1, 2004



# SkySite Platforms are 20-mile-high “Towers”

One SkySite™ = 300 towers & users keep same device

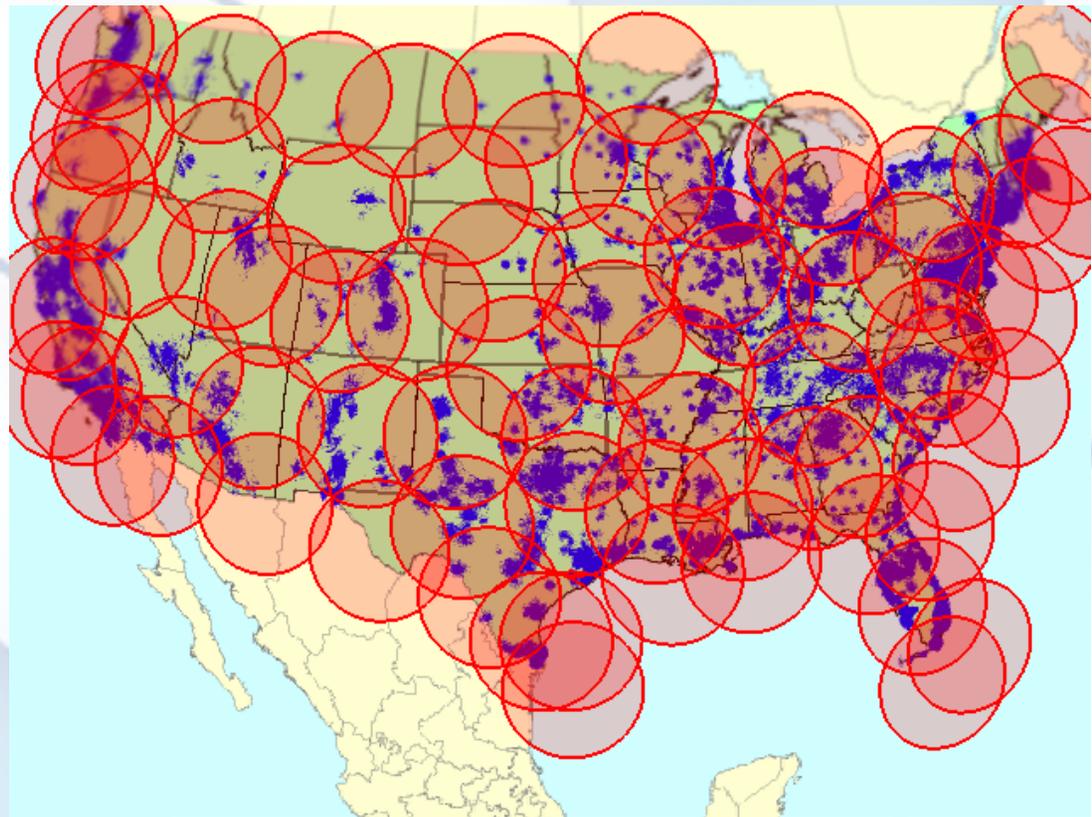
Uses proven weather balloon launch approach



# Space Data's Coverage Solution

**Wireless repeaters on weather balloons at 100,000 ft provide complementary coverage to towers**

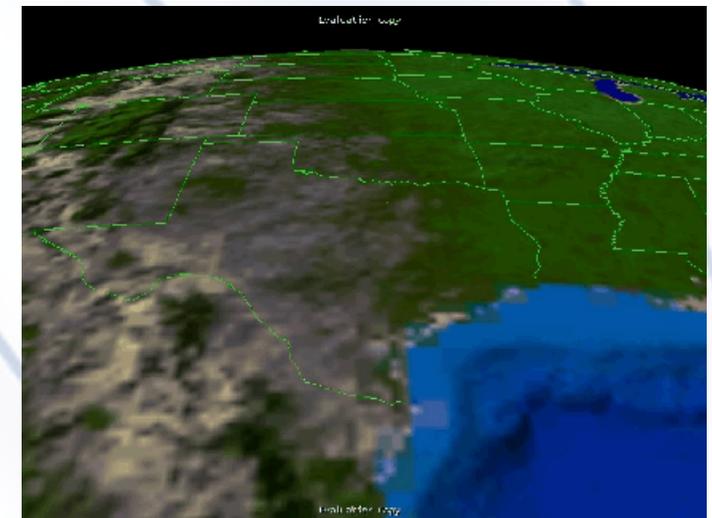
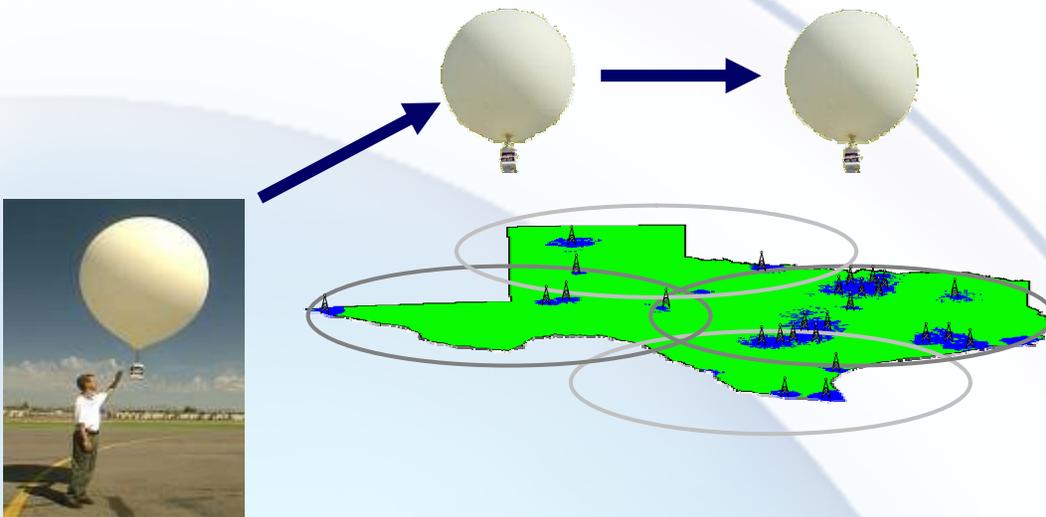
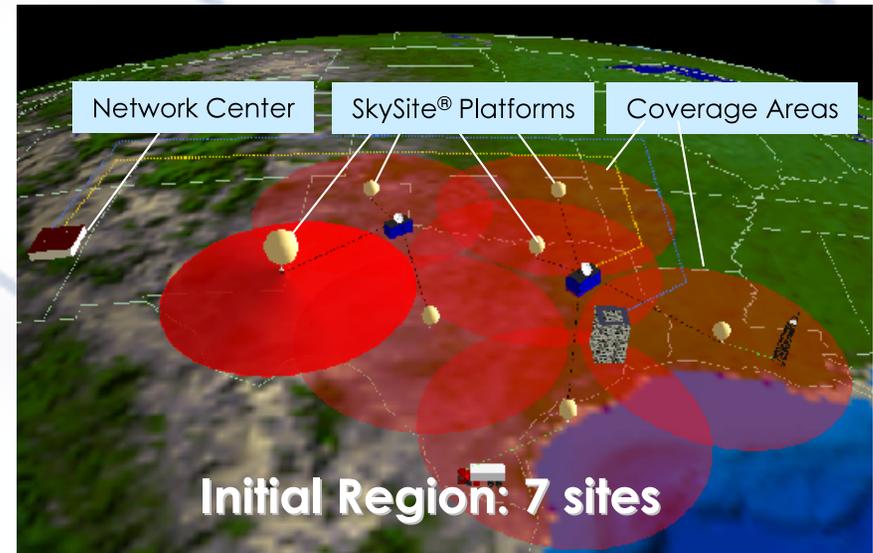
- Uses inexpensive user devices
- Roams onto towers for urban coverage
- Environmentally Benign & Safe
- FCC/FAA approvals
- Leverages 60+ yrs of weather balloon operations



# Space Data's Current System

## Currently deployed 24 x 7 operation

- Oil & gas telemetry
  - 75,000 wells need new service due to loss of CDPD
- Local / regional fleet tracking
- A single SkySite® Platform covers a 420-mile diameter circle



Each SkySite rises to 100,000 feet and levels off. In the uniform winds at that altitude, a constellation of interlocking SkySites® float in unison to blanket large regions with coverage. New SkySites® are launched every 12-24 hours to replace the previous constellation which is taken down, recovered and reused.

# Initial System Applications

- Telemetry / M2M
  - Oil wells & pipelines
  - Irrigation control
  - Remote security
- Telematics
  - Road side assistance
  - Air bag notification
- Location services
  - Asset tracking
  - GPS vehicle location
- 2-way wireless email
  - Text messaging
  - Enterprise applications



# ATG Licensing Proposals

- Two exclusive 1.5 / 2.5 MHz licenses (FCC Staff)
  - 2.5 MHz license can support CDMA technology.
  - 1.5 MHz license can support technologies such as iDEN and GSM to provide a variety of services, including voice, Internet access, and SMS to ATG customers.
    - At least 1.4 MHz is needed to support data to users as WiDEN (80 Kbps) requires four 25 kHz paired channels with a reuse of 7.
    - Licenses smaller than 1.4 MHz support voice/low speed data only
  - Stratospheric platforms are ideally suited for providing ATG services in either 1.5 or 2.5 MHz.
    - Adaptable to market demand – total coverage from fewer sites scaling to many sites as market grows
    - No near-far interference eliminates need for guard bands
  - Incumbent's operations can be protected during the transition to the new licensing scheme.

# ATG Licensing Proposals (Cont.)

- Exclusive 4 MHz license (Verizon Airfone)
  - Retains absence of ATG competition
- Two overlapping licenses (AirCell & Boeing)
  - Significant technical risk
  - Inflexible design
    - Rigid fixed site locations
    - Significant, ongoing technical coordination between licensees will make it difficult for licensees to react to changes in market demands and technologies
  - Requires the FCC to promulgate detailed base station location, sharing, and interference requirements
    - Requirements become even more complicated to craft if each licensee uses different technologies / protocols.

# ATG Licensing Proposals (Cont.)

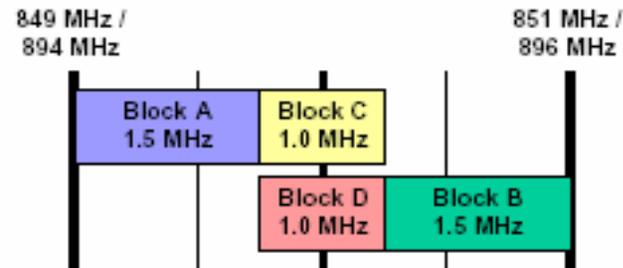
- The new AirCell/Boeing proposal to assign two overlapping 3 MHz licenses simply adds 125 kHz guard bands.
  - No party has produced data showing guard bands are necessary for every technology.
    - Space Data's balloon-borne system does not experience near-far interference.
      - All users are far from a balloon at 100,000 feet
    - CDMA ATG network can be stacked next to Cellular B Block, much of which is CDMA technology, without interference.
      - Within cellular band, carriers stack CDMA channels next to each other with no guard band
- The new proposal does nothing to solve technical and regulatory obstacles associated with overlapping licenses.

# Combinatorial Bidding Offers Viable Market-Based Compromise

- An exclusive license allocation would best serve the development of the ATG market and the public interest. Space Data, however, suggests a compromise that takes into account the other licensing proposals.
- The ATG auction can be designed so that bidders determine whether exclusive or overlapping licenses are assigned, and thus the best use of the four MHz of ATG spectrum.
- The ATG spectrum can be divided into four auctionable frequency blocks, which can be combined.

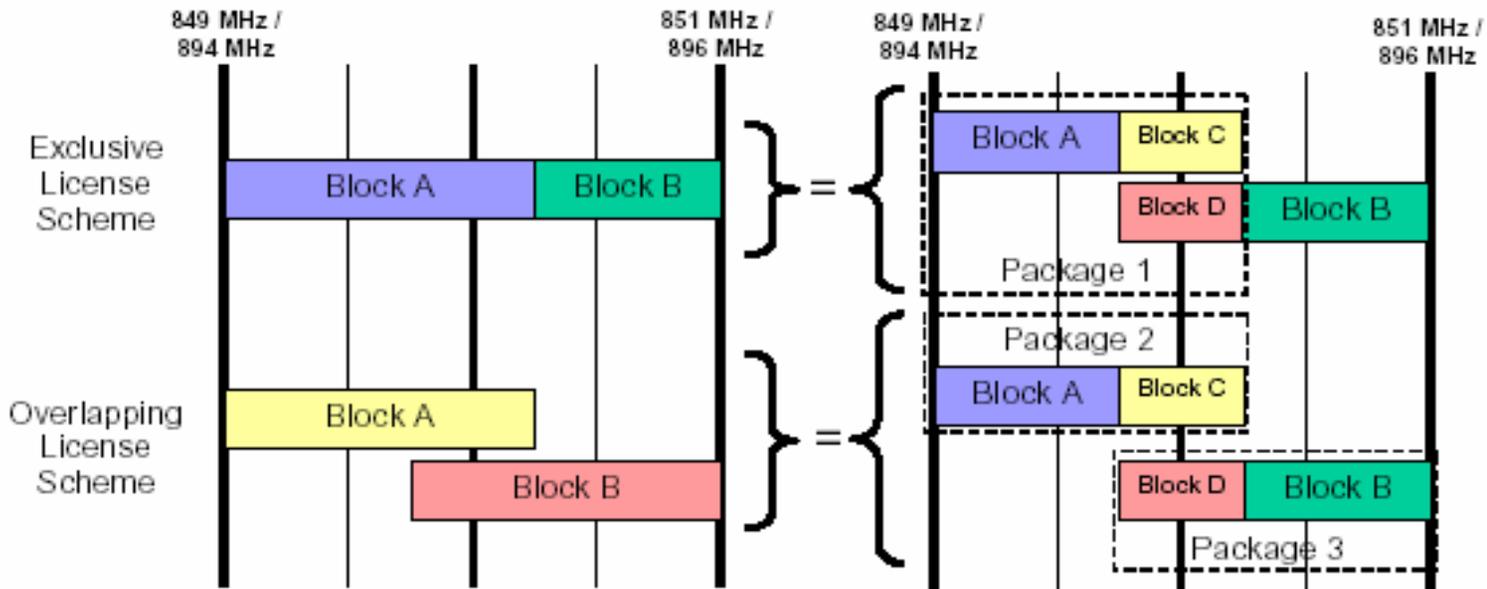
# Proposed Bidding Package

Proposed scheme with package bidding:  
 A Block: exclusive use 1.5 MHz  
 B Block: exclusive use 1.5 MHz perhaps with an initial period of sharing with the legacy ATG network  
 C Block: shared use of 1.0 MHz  
 D Block: shared use of 1.0 MHz



## Current Licensing Schemes Being Considered

## Equivalent Schemes With Package Bidding



# An ATG Auction Must Include:

- Cross-ownership restrictions
  - Prohibiting one entity (or two affiliated entities) from holding all ATG licenses will ensure competition rather than the allow one carrier to monopolize ATG services.
    - If shared spectrum licenses are used, one entity should be prohibited from holding both exclusive blocks.
  - Consistent with the FCC's approach to ensuring competition in other developing wireless markets
- Bidding credits
  - Encourages small businesses to invest in and deploy ATG networks.