Space Data Corporation

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

Gerald Knoblach
President and CEO

October 19, 2004

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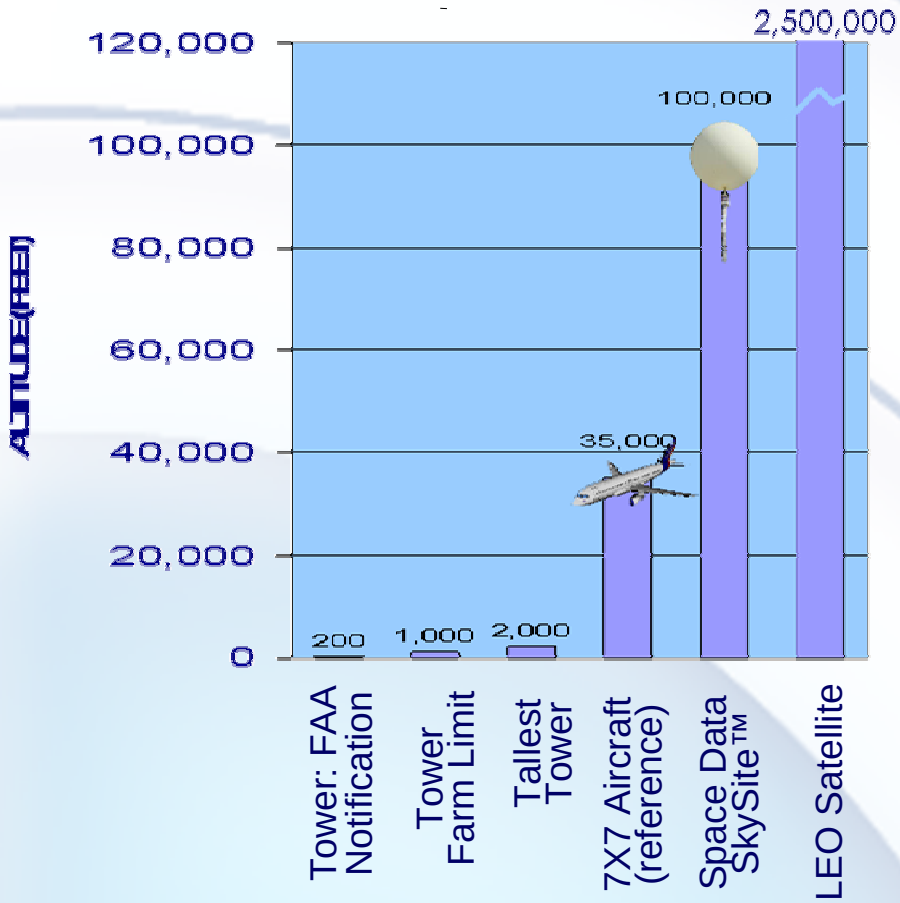
Stratospheric SkySite Platforms Are Effectively 20-Mile-High "Towers"

One SkySite® = 300 towers & users keep same device



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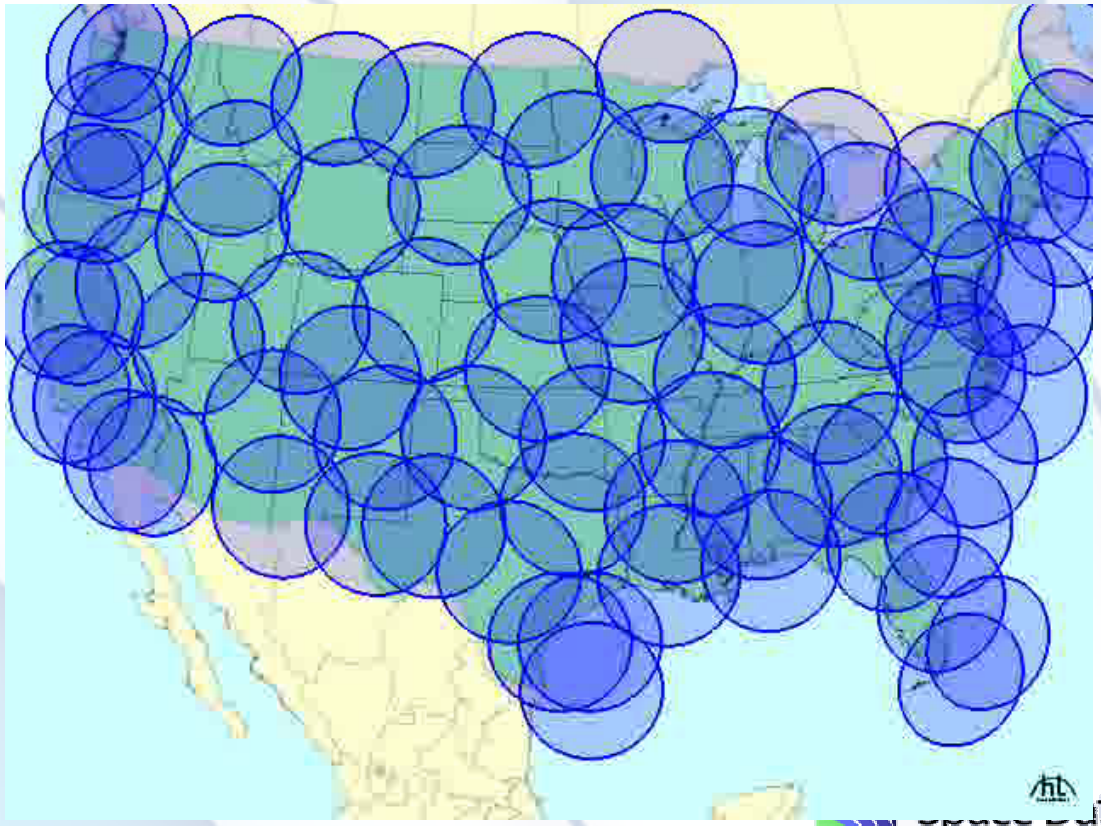
Space Data's Coverage Solution

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

- Leverages 60+ yrs of weather balloon operations
- Uses existing inexpensive user devices
- Fills in coverage gaps
- Roaming onto towers for urban coverage
- FCC/FAA approved
- Environmentally benign & safe



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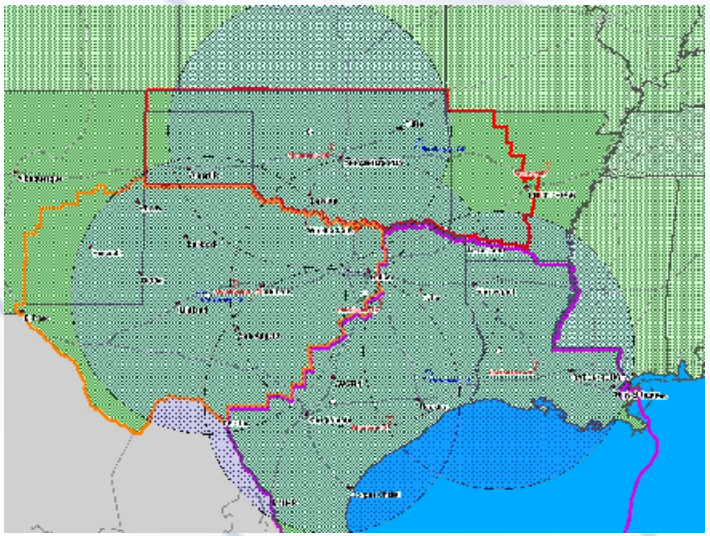
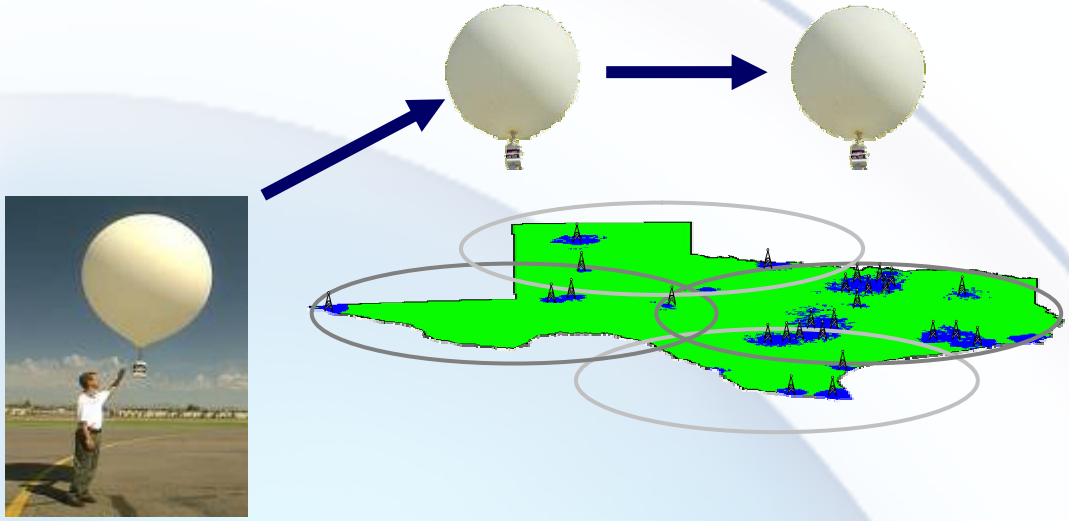
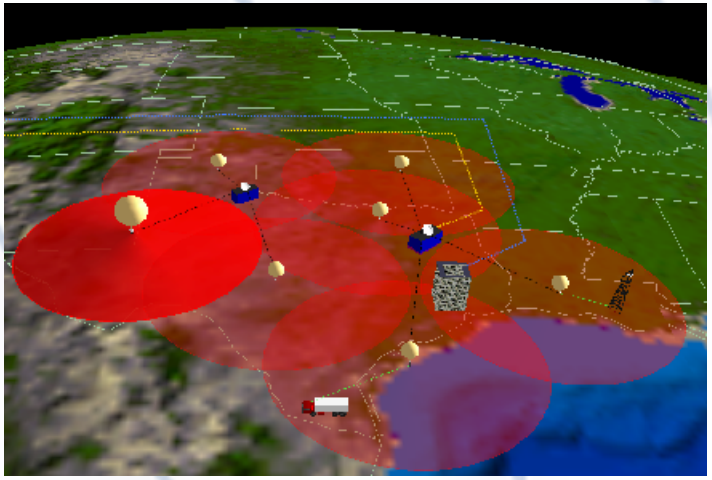
Space Data's Current System

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® 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.

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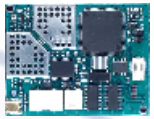
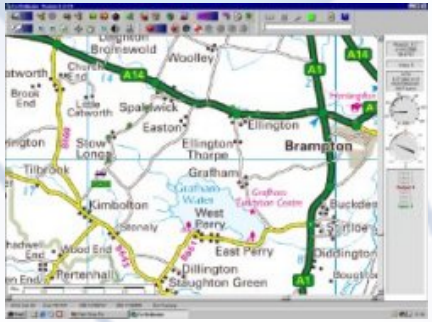
Initial System Applications

- Telemetry
  - 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

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ATG Licensing Proposals

- Two exclusive 1.5/2.5MHz 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.
  - Stratospheric platforms are ideally suited for providing ATG services in either 1.5 or 2.5 MHz.
  - Incumbent's operations can be protected during the transition to the new licensing scheme.

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ATG Licensing Proposals

- Exclusive 4 MHz license (Verizon Airfone)
  - Retains absence of ATG competition.
- 2-4 overlapping 2.5 MHz 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 new technological developments.
  - 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 and protocols.

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Two-Exclusive ATG License Approach Produces Best Outcome

- Solves all shared spectrum problems.
  - Promotes competition in the ATG market.
  - Flexibility for licensees to scale networks in response to market demand.
  - Technologically neutral / not locked in to specific technologies, protocols, or pace of development.
  - Administratively and technologically simple to implement.
  - Avoids complex interference and sharing requirements and potential restrictions on future expansion or upgrades to networks.
- Stratospheric systems can provide significant ATG services in either 1.5 or 2.5 MHz licenses.

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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.

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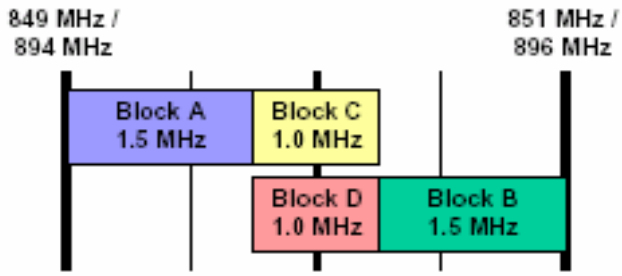
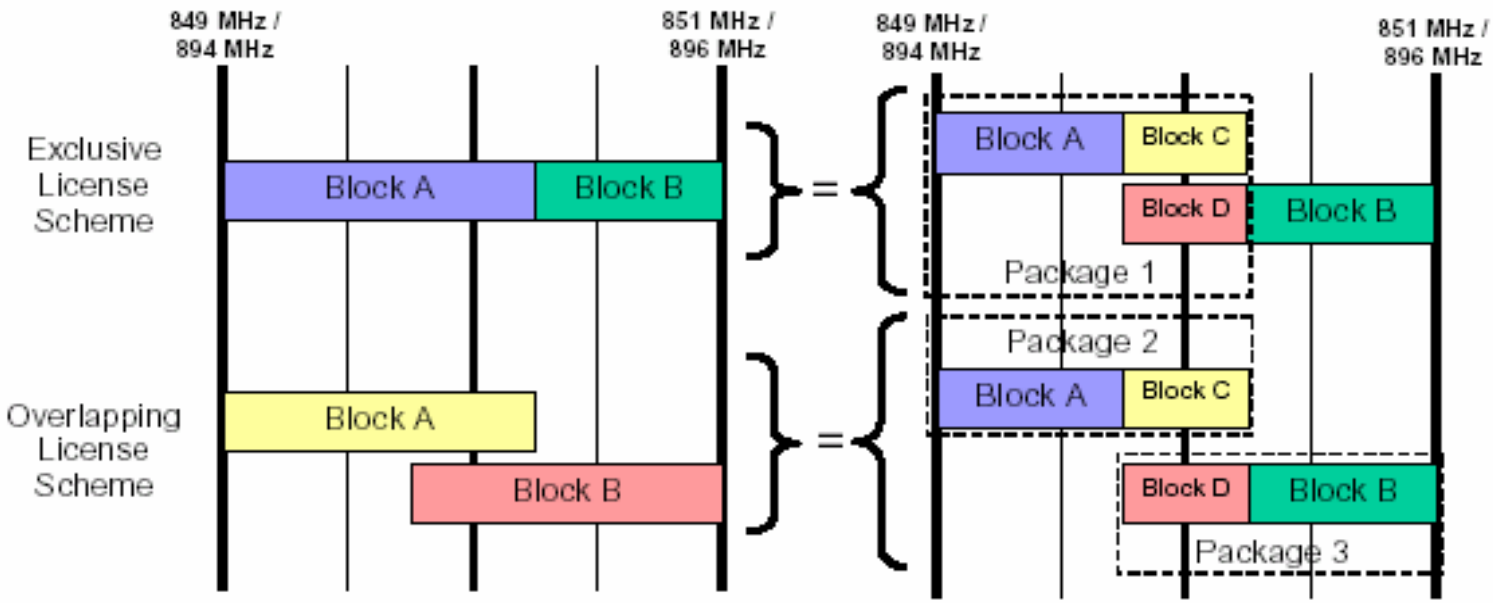
Proposed Bidding Package

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**



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Combinatorial Bidding

- A licensee interested in an exclusive 2.5 MHz license would bid on the A, C and D Blocks. The second winning bidder would have an exclusive 1.5 MHz license.
- A licensee interested in overlapping 2.5 MHz licenses would bid on the A and C Block or the B and D Block.

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Three-Block Bidding Alternative

- In the alternative, the ATG spectrum could be divided into three exclusive blocks (A, B and C Blocks, each 1.33 MHz). A licensee interested in an exclusive 2.66 MHz license would bid on the A and B Blocks. The second winning bidder would have an exclusive 1.33 MHz license.
- The 1.33 MHz license can support iDEN or other technologies to provide voice, Internet access and SMS.
- Allows some guard band spectrum for CDMA in a 2.66 MHz license.

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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.
  - 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.

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Personal Handsets Offer Most Effective Competition For ATG Calls

- Effective competition requires more than one ATG provider to be accessible on an airplane. Use of personal handsets the most effective solution.
- Interference issues are being addressed by the FAA/ RTCA. The FCC should not preclude use of handsets if FAA lifts its restrictions.

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Summary

- To provide true competition the consumer must have a choice of wireless providers in the cabin.
- The Staff's two-exclusive license proposal is realistic and feasible to implement from a technical and policy perspective.
- Stratospheric systems are fully capable of providing significant ATG services in either 1.5 or 2.5 MHz licenses.
- Verizon's exclusive license proposal provides no customer choice.
- Aircell's and Boeing's shared spectrum proposals would be cumbersome to implement and would stifle development of ATG services.
- An auction using combinatorial bidding packages would provide a viable market-based compromise between licensing proposals.

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