UNIVERSAL SPACE NETWORK

Commercial Perspectives:

"Ground System Enablers and Future Small Sat Development"

4 March 2015

www.sscspace.com/usn

© 2015 Universal Space Network, Inc. Published by The Aerospace Corporation with permission

OUR JOURNEY TO BECOME THE LEADING GLOBAL PROVIDER OF ADVANCED SPACE SERVICES

Global Connectivity for Space Operations (Current Capability)

© 2015 Universal Space Network, Inc. Published by The Aerospace Corporation with permission

Key Questions We Ask Ourselves

- How do we retain global leadership?
- How do we continue to provide "advanced" space services?
- How do we continue to fulfill USN's founding corporate vision regarding "commercial space services" and remain part of "new space" versus getting left behind as part of "old space"?

© 2015 Universal Space Network, Inc. Published by The Aerospace Corporation with permission

Strategy, Business Plan, and Risk

- **Focused effort on consistent service delivery quality**
- **Maintain customer trust**
- **Develop partnerships**
- **Grow our market share**
- **Leverage our strong reputation**
- **Expand our existing ground network services to address a broader, evolving market**

USN was “First Generation New Space” and Ready for “Second Generation New Space”

© 2015 Universal Space Network, Inc. Published by The Aerospace Corporation with permission

Macro Marketplace Trends

- Technology and “access to space” fundamentally changing today’s space marketplace
- Resulting in new entrants
- Change being driven primarily in the U.S., will eventually transition to the rest of world (ROW)
- Creating perceptions of “old space” and “new space”

© 2015 Universal Space Network, Inc. Published by The Aerospace Corporation with permission

Characteristics of "Old Space"

- Could be better described as "Legacy", "Big", or "Traditional" space
- Characteristics:
  - Usually government driven from technological and customer perspectives, and government driven as a customer but not as technology investor
  - Limited "access to space" drove business and operating models
    - Small number of medium to large spacecraft – either multi-mission or maximizing revenue from available spacecraft landscape

Big, Slow, Requirements-driven, Expensive, Specific

© 2015 Universal Space Network, Inc. Published by The Aerospace Corporation with permission

Characteristics of "New Space"

- Could also be described as "Emerging" or "non-Traditional" space

- Rapidly growing market, driven currently from within the U.S.
  - Evidenced by large investments of new capital (Google/Skybox, SpaceX, Bigelow,)
  - Evidenced by large number of companies entering as start-ups or as new endeavors to existing businesses – as barriers to entry lower
  - Rapid increase in number of suppliers, both small and large
  - Adaption of available technology in new ways (investment on application, and less on development of core technology)
  - Use of computer/internet/cloud power, applications, and storage to create new applications, new ways of doing existing things, doing new things, ….
  - Needs expertise, but not necessarily systems, of Old Space

Agile, Technology-leveraging, Commercial

© 2015 Universal Space Network, Inc. Published by The Aerospace Corporation with permission

...More Questions We Ask Ourselves

- Are we fulfilling demand or are we creating demand?
- Can we clearly define an incremental path to success?
- Is this the right time for the customer to accept this idea?

© 2015 Universal Space Network, Inc. Published by The Aerospace Corporation with permission

SSC and Universal Space Network operate the largest multi-mission satellite ground network in the world. From mission engineering and pre-launch support through vehicle end-of-life, we provide scalable solutions and secure operations for missions of all sizes.

sscspace.com/usn

SSC UNIVERSAL SPACE NETWORK

© 2015 Universal Space Network, Inc. Published by The Aerospace Corporation with permission