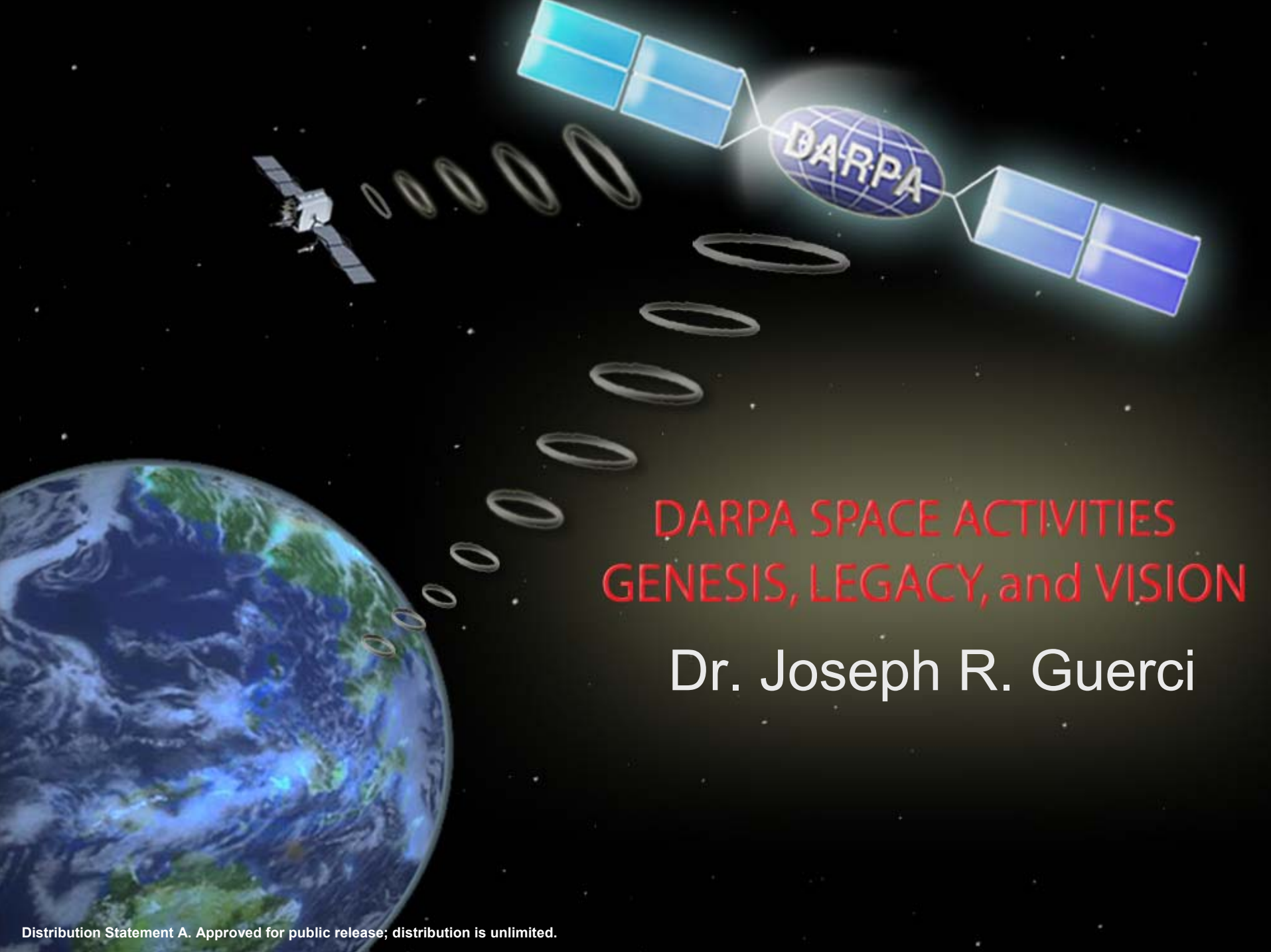
DARPA

DARPATech

2002 Symposium

Transforming Fantasy

DARPA
Joe Guerci
Deputy Director,
Special Projects Office
Transforming
Fantasy



DARPA SPACE ACTIVITIES GENESIS, LEGACY, and VISION

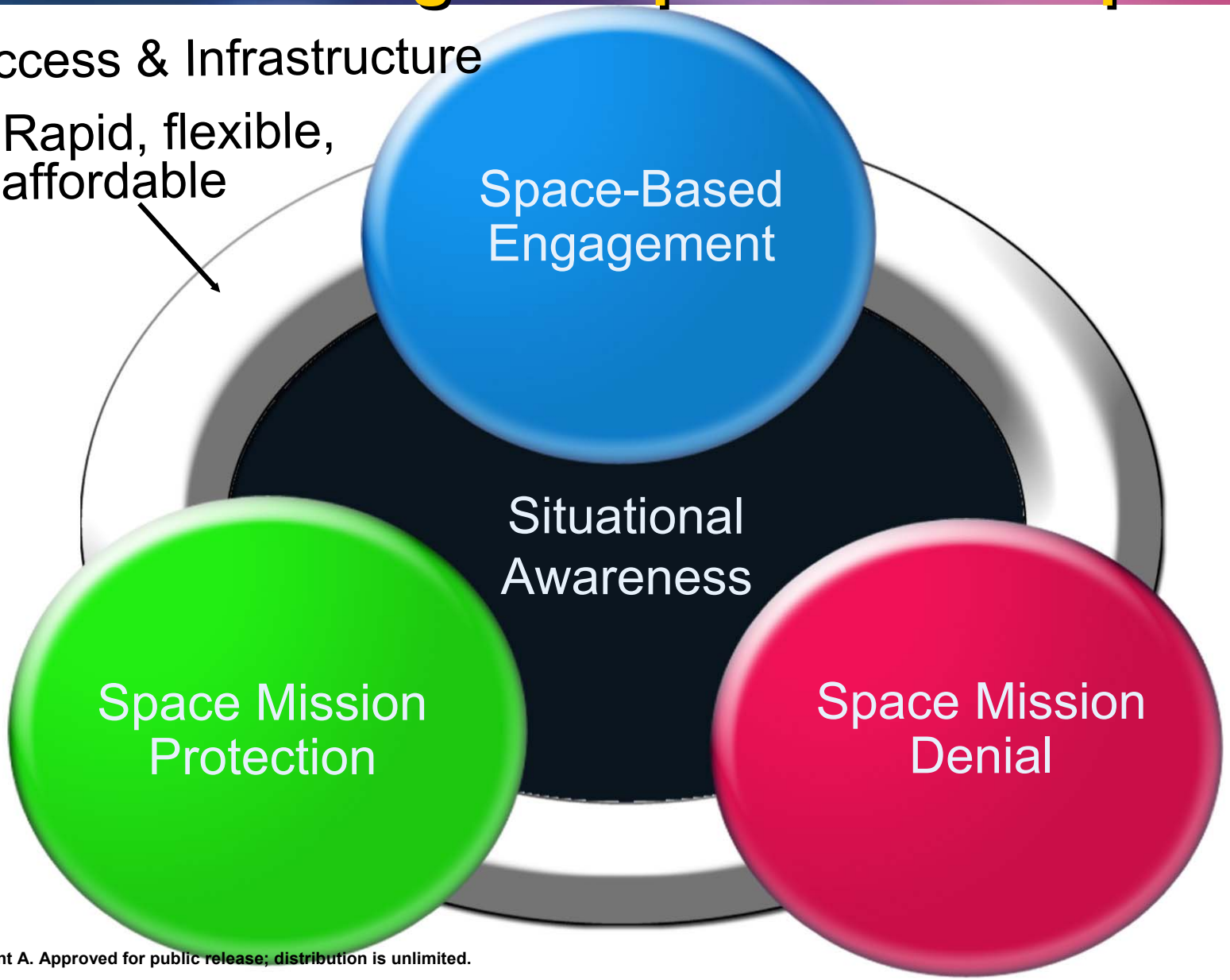
Dr. Joseph R. Guerci

Distribution Statement A. Approved for public release; distribution is unlimited.

Tactical Warfighter Operations in Space

Access & Infrastructure

- Rapid, flexible, affordable



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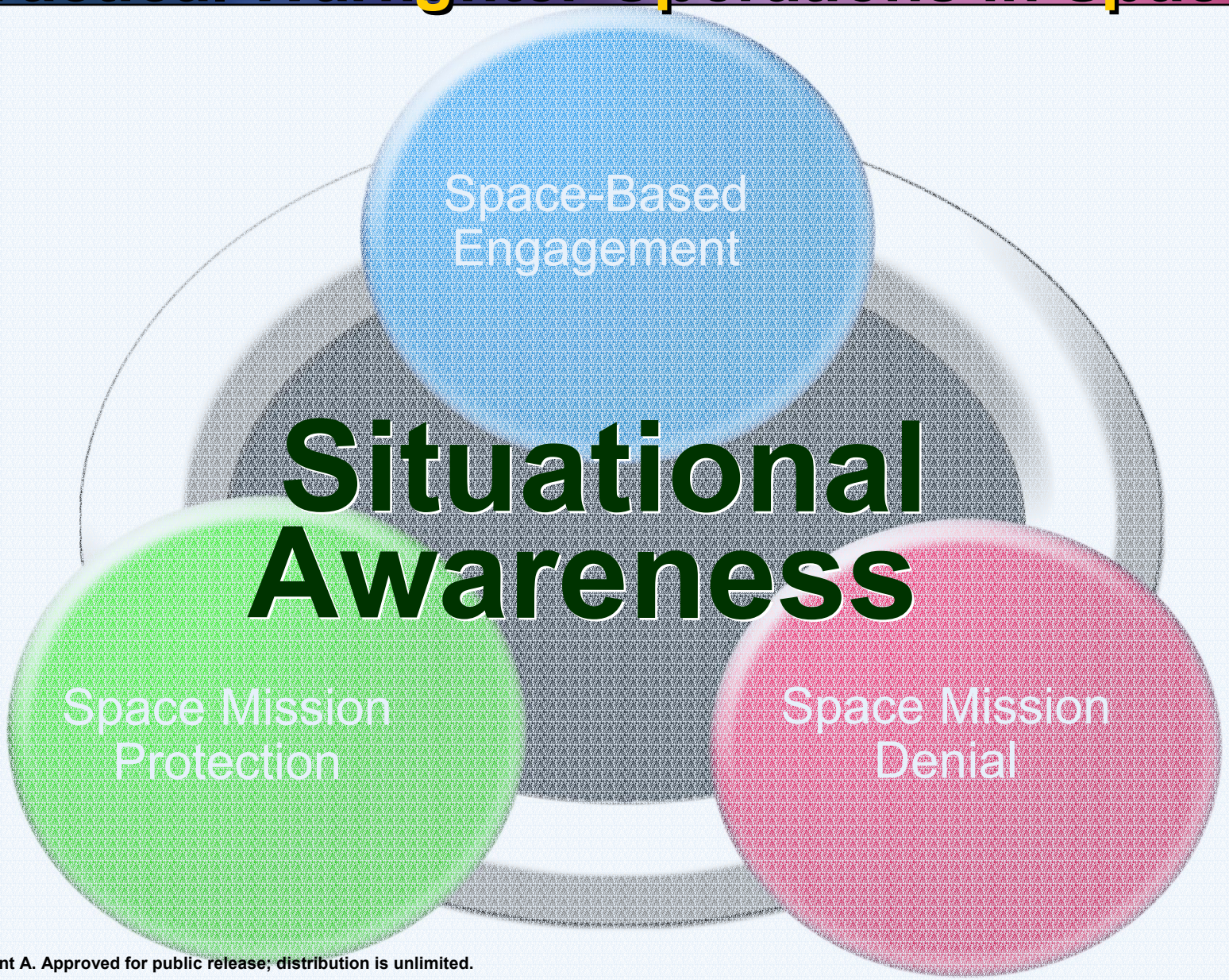
Tactical Warfighter Operations in Space



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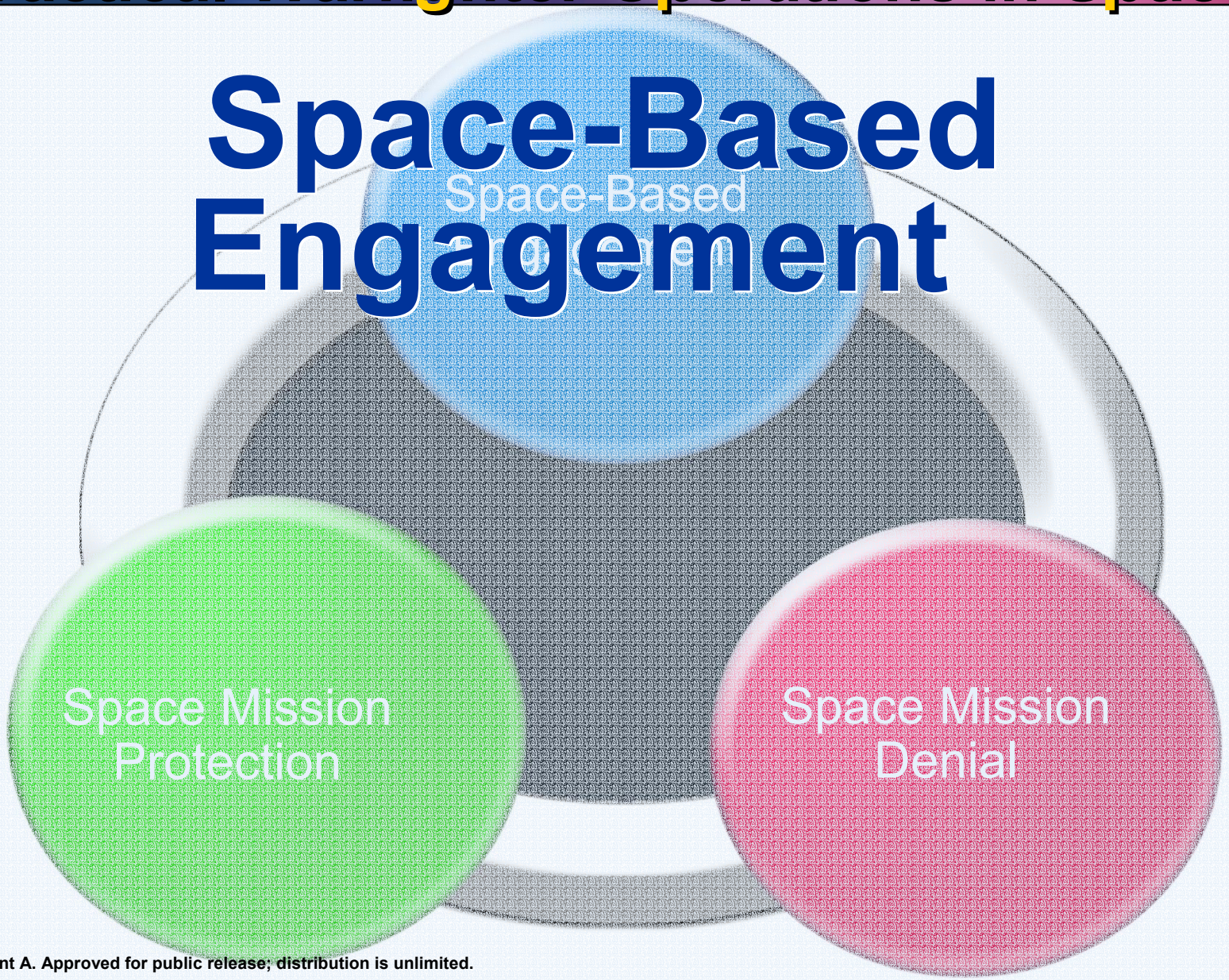
Tactical Warfighter Operations in Space



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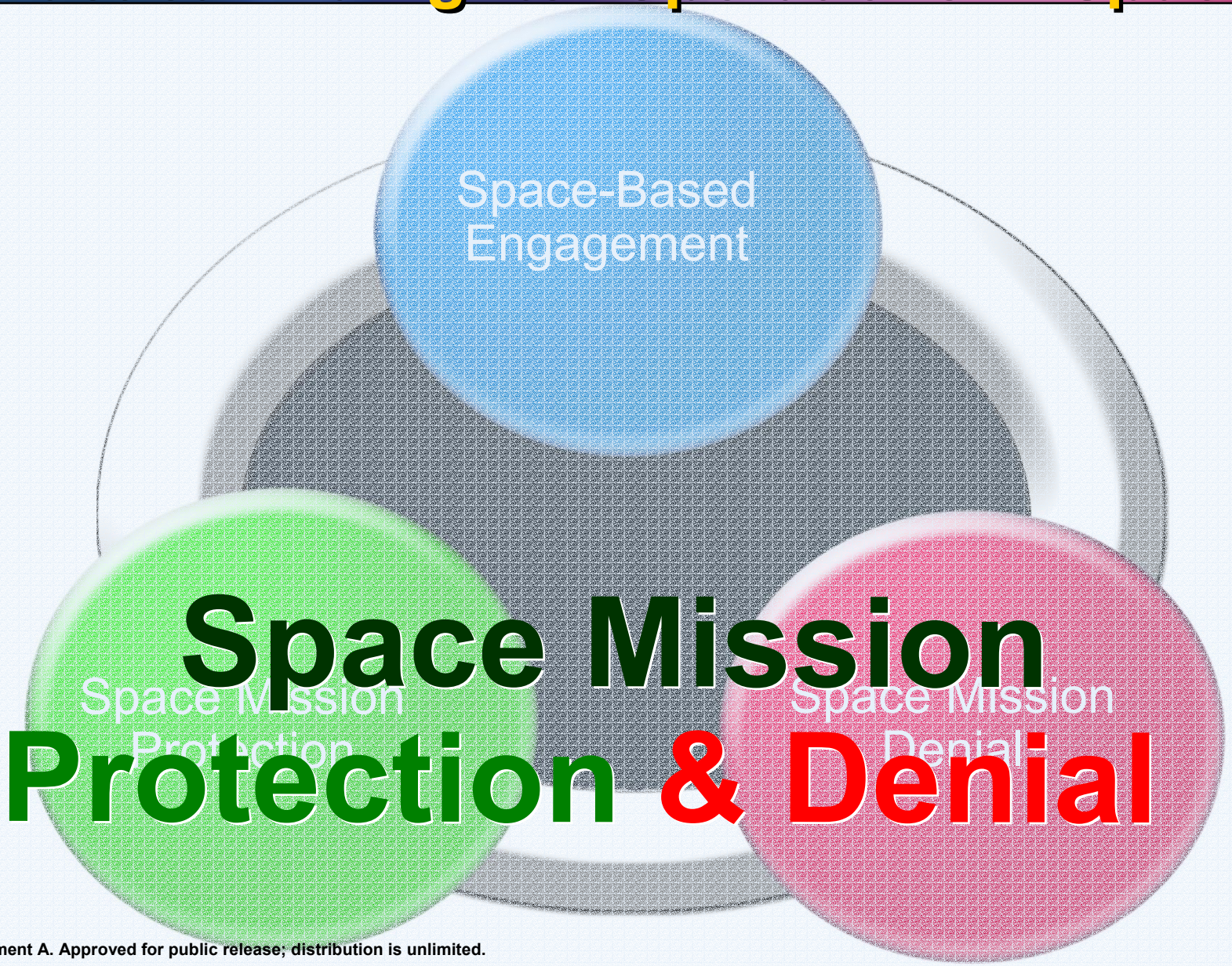
Tactical Warfighter Operations in Space



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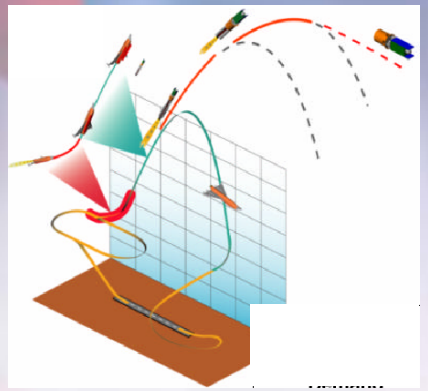
Access is Key

Continuum of Options and Opportunities

Direct ← Access → *Indirect*

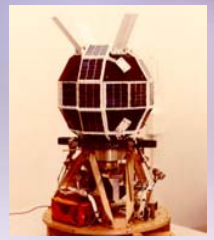
Affordable Launch Vehicles & Access



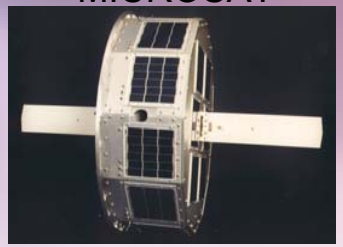
RASCAL

Microsatellites
Secondary/Piggyback Payloads

GLOMR



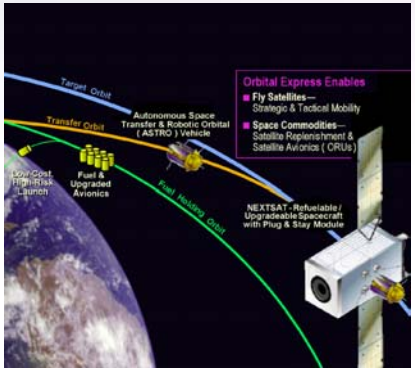
MICROSAT



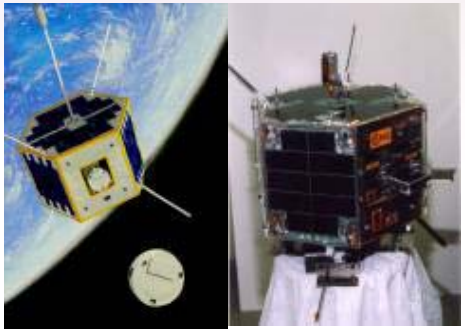
Microsatellites

Payload/Spacecraft
"Compression"

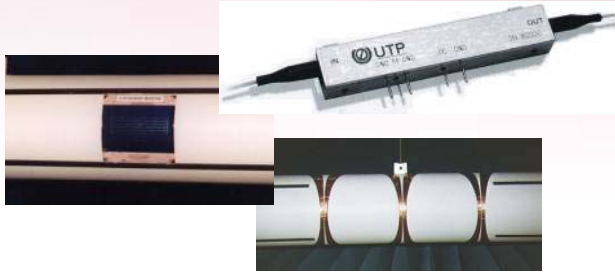
Rigidized Inflatable Structures



Orbital Express



Picosatellites
(OPAL)



Lightweight/Flexible Electronics
(Photonics, Solar Cells, Antennas, etc.)

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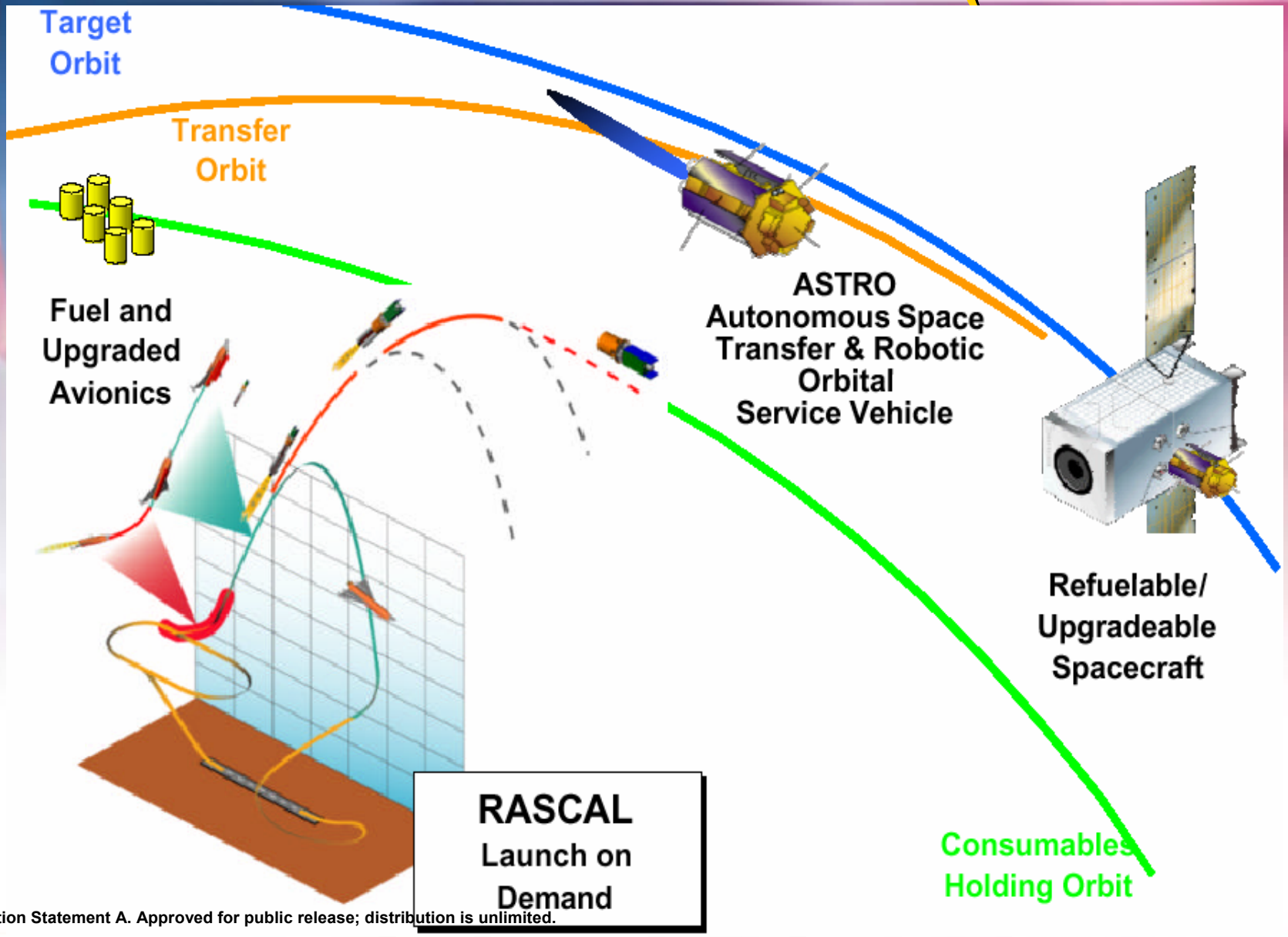
Responsive Access, Small Cargo, Affordable Launch (RASCAL)



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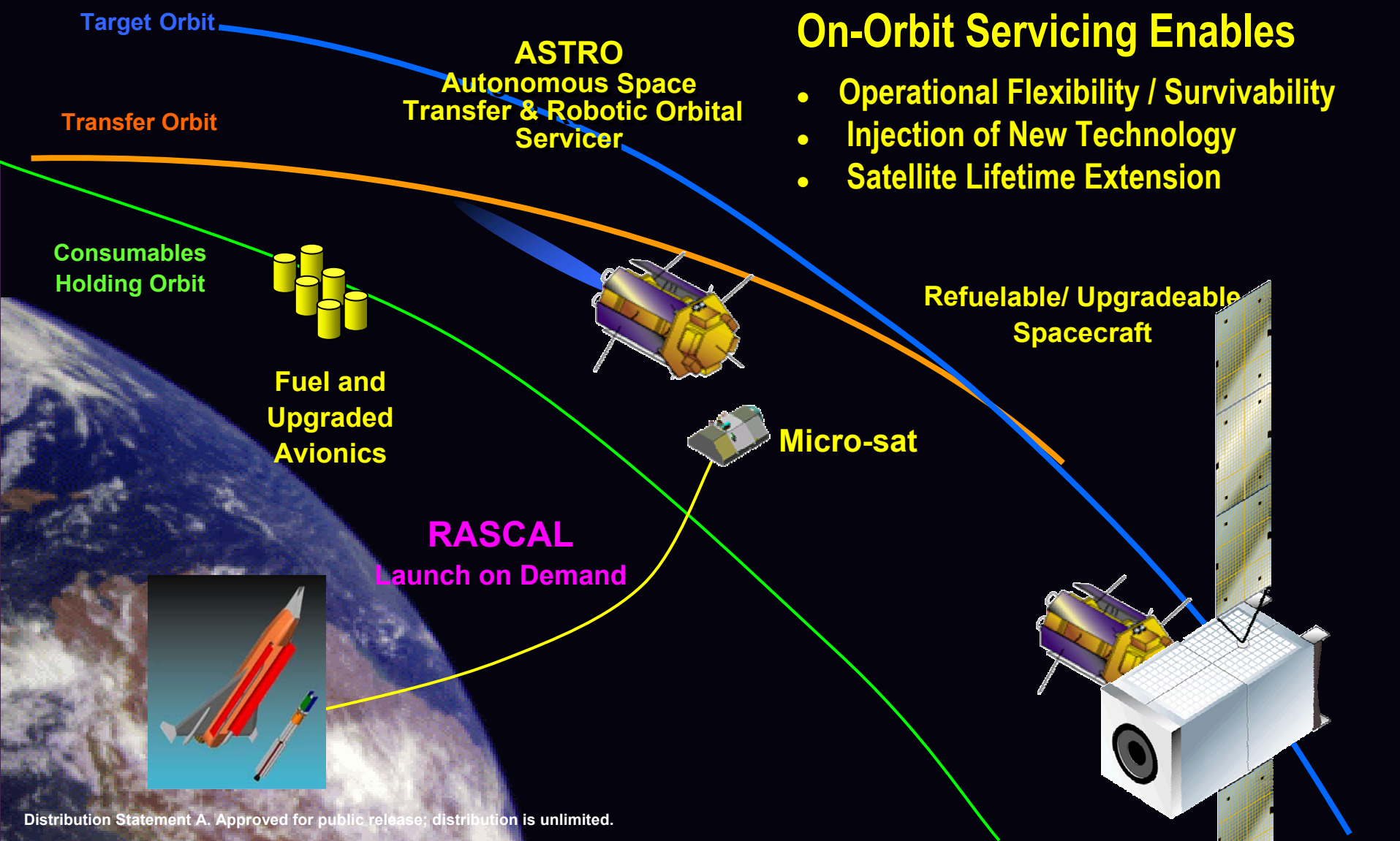
Orbital Express – Robotic Servicing of Satellites



On-Orbit Servicing Enables

- Operational Flexibility / Survivability
- Injection of New Technology
- Satellite Lifetime Extension

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Compressible Structures Technologies

ECHO BALLOONS

1960

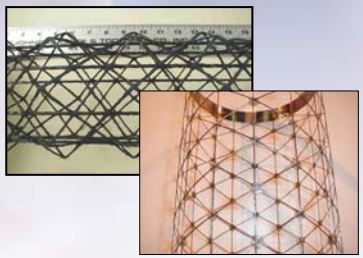
REFLECTOR ANTENNAS

1980

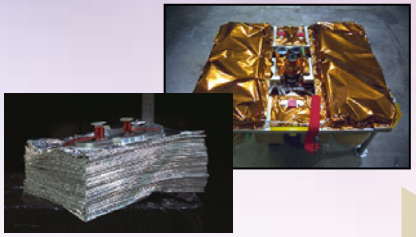
INFLATABLE ANTENNA EXPERIMENT

1996

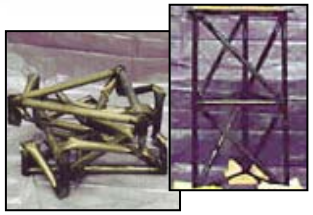
ILC DOVER



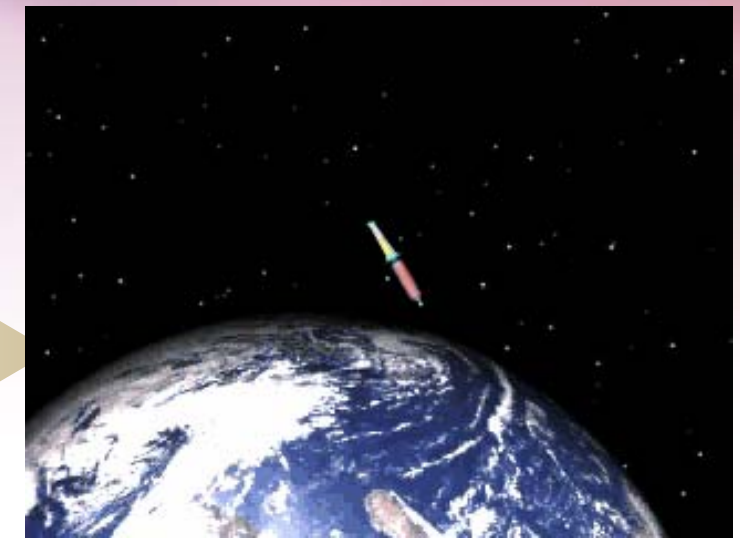
L'Garde



Rigidized inflatables and composite joint materials support large aperture deployments



Foster-Miller



L'Garde deployment concept

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Sampling of Current Space Activities

- **Rascal –**
  Mr. Preston Carter
- **Orbital Express –**
  Maj. James Shoemaker, PhD
- **Space Situational Awareness –**
  Dr. Timothy Grayson
- **Space Imaging –**
  Lt Col Gregory Vansuch, PhD
- **ISAT –**
  Dr. Joseph Guerci

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