Service-based Frameworks

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SOFTWARE TENDS TOWARD MONOPOLY/DUOPOLY

- High Fixed Costs, Low Marginal Costs – Natural Monopoly
- End users want compatibility, interoperability of data, familiar interfaces
- More users of the same capability, more pressure to consolidate.

Many Competitors

One or Two Choices

Microsoft Word, Google Docs
IOS, Android
Active Directory, LDAP
NFS, CIFS
AVOIDING THE HIGH COST OF SW

- Maximize functionality from mainstream commercial & open source
- Minimize owned software
- Contribute to open source
TOP 3 CHALLENGES

• Establish interface specifications for enterprise services without killing off industry innovation and evolution
  – segmenting the market with different interface standards will shrink the investment in each segment.

• User interfaces and user interface toolsets are evolving quickly. The presentation layer represents a large part of the mission unique and domain unique development.
  – auto-generated display pages may help reduce development costs, but good UX design helps avoid operational errors.

• Software-intensive spacecraft have a more dynamic space/ground interface over the mission lifetime. Existing command/telemetry paradigms are not designed for managing software.
  – Example: GEO’s have gone from 6,000 telemetry items to 80,000 telemetry items primarily due to software telemetry.