Remote Agent Experiment Fact Sheet

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Validation Objectives
- Initiate and generate flexible plans on-board
- Reject low-priority, unachievable goals
- Execute plans generated both on-board and from Ground
- Confirm execution of commands
- Demonstrate model-based failure detection and recovery
- Maintain required spacecraft states in the face of failures
- Re-plan following a failure
- Generate back-to-back plans
- Modify mission goals from Ground
- Execute low-level commands from Ground
- Update estimated spacecraft state database from Ground

Capabilities
- Robust Goal-based commanding
  - Planner expands high-level goals into flexible plans
  - Executive decomposes plans into low-level spacecraft commands and monitors that the states commanded to are achieved and maintained
- Fail-operational model-based fault recovery
  - Livingstone identifies faults and suggests recoveries that the Executive uses to continue plan execution
  - If necessary, Executive requests the Planner to generate a new plan in light of failure

Applicability to future missions
Remote Agent technologies are generally applicable to mission that benefit from highly autonomous operation and are currently being applied to prototypes of future NASA missions including a space-based interferometer and an in-situ propellant production plant.