



# FUTURE-PROOF MISSION CONTROL SYSTEMS

LEVERAGING AGNOSTIC DESIGN FOR AUTONOMOUS  
AND EVENT-DRIVEN SATELLITE OPERATIONS

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# WHAT ARE WE DOING, AGAIN?

Loft is building a **space infrastructure**  
to enable its customers to fly and operate any mission faster, simpler and safer.



**UNIVERSAL**

*Any payload: physical or software-defined.*

*Support from one-off to mega-constellations.*



**FAST**

*Accelerate schedule from design to orbit.*

*Integrate within days, not months.*



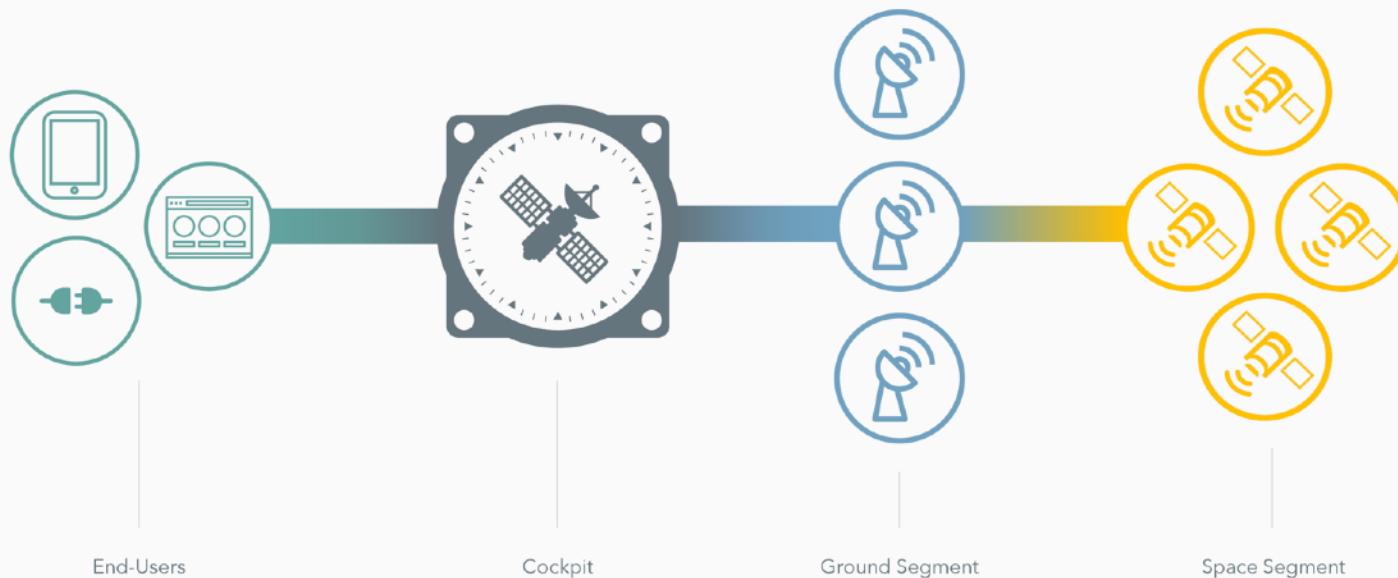
**SIMPLE**

*No specific knowledge required to operate mission.*

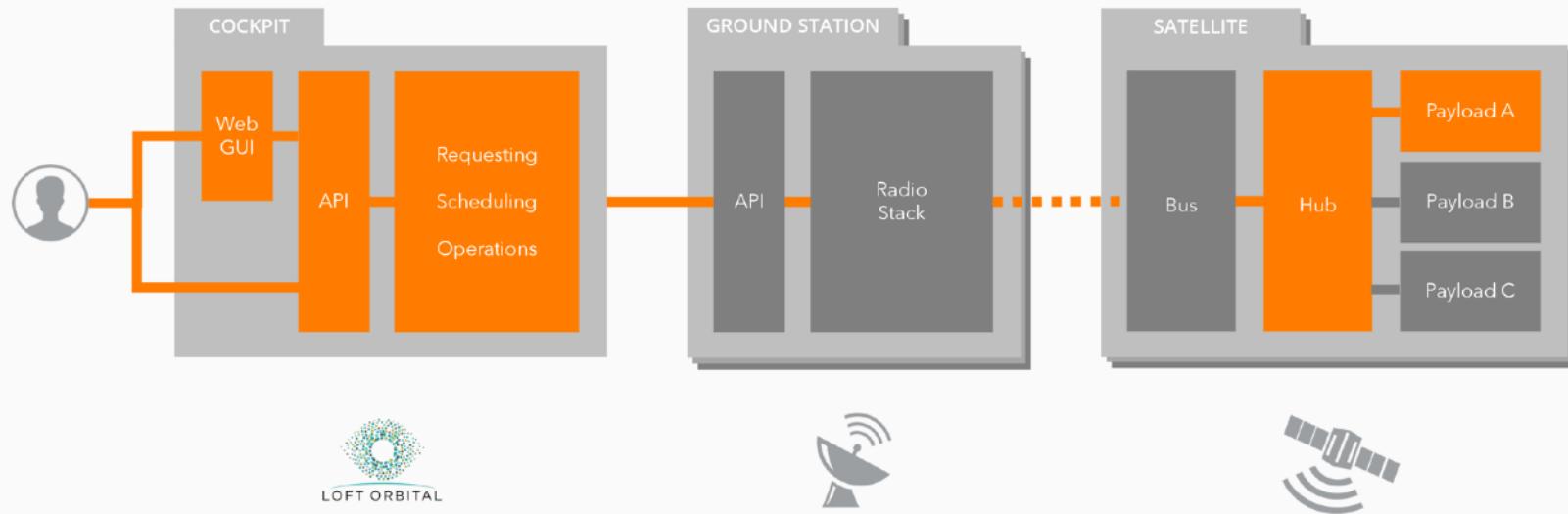
*Full automation focusing on scalability and performance.*

# THE BIG PICTURE

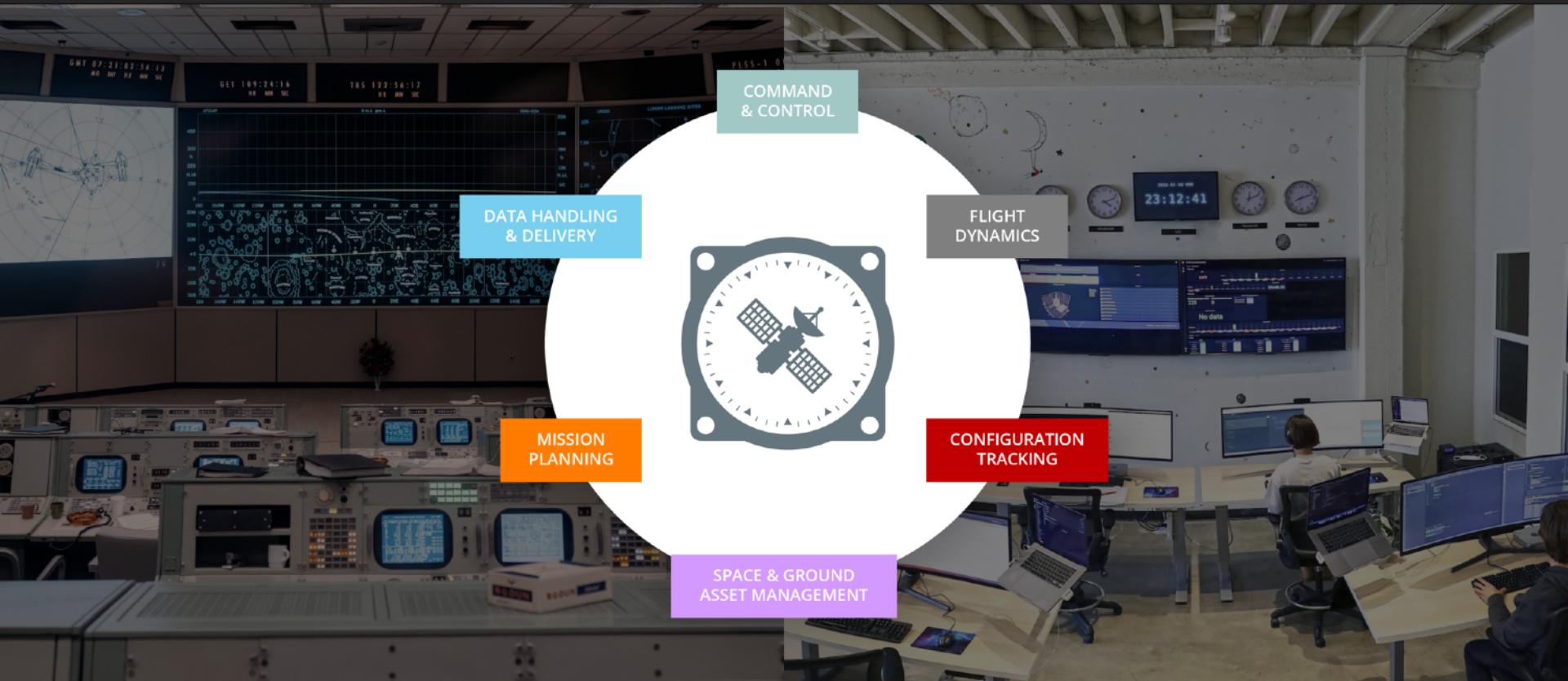
Cockpit empowers end-users with powerful satellite constellation management capabilities while **abstracting away** the complexity of spacecraft operations.



# TYPICAL CONTROL & DATA FLOW

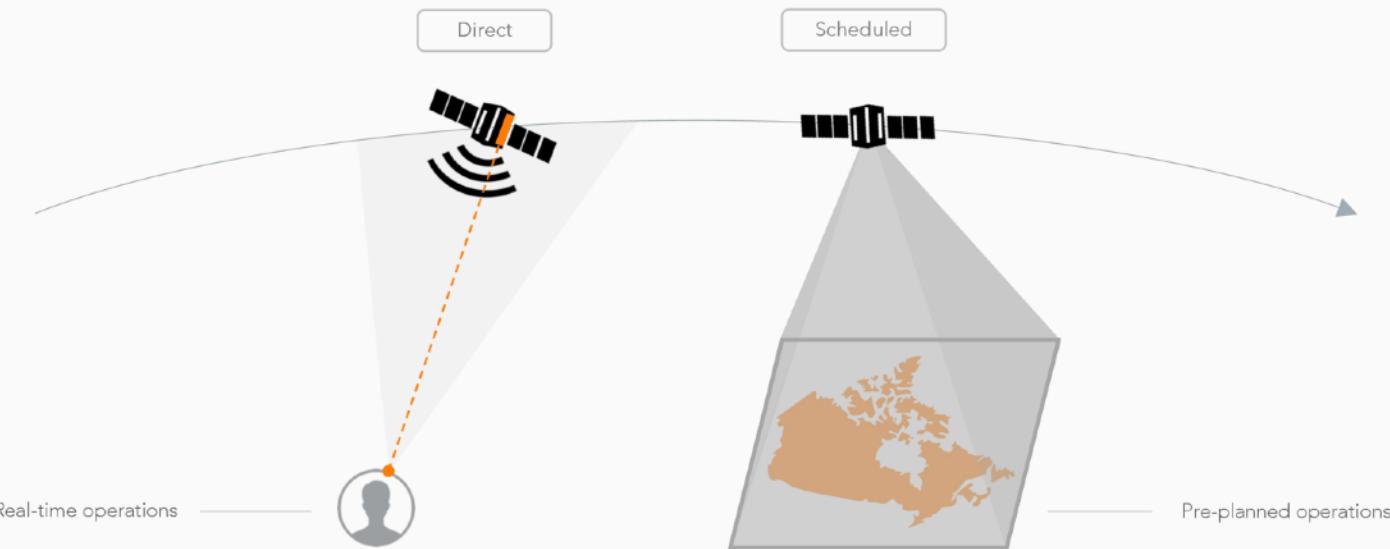


# GROUND CONTROL INTEGRATED & AUTOMATED



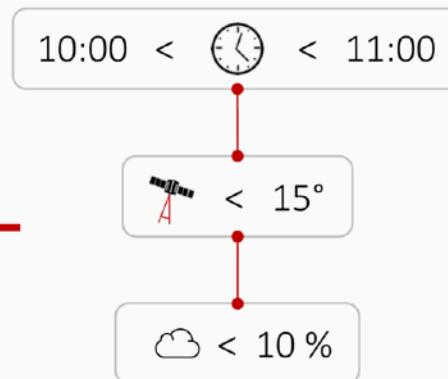
# OPERATIONAL CONCEPTS

Direct and scheduled mission control capabilities are provided.  
Even on a **rideshare configuration**, payloads can be operated as if they were flying on a dedicated satellite.

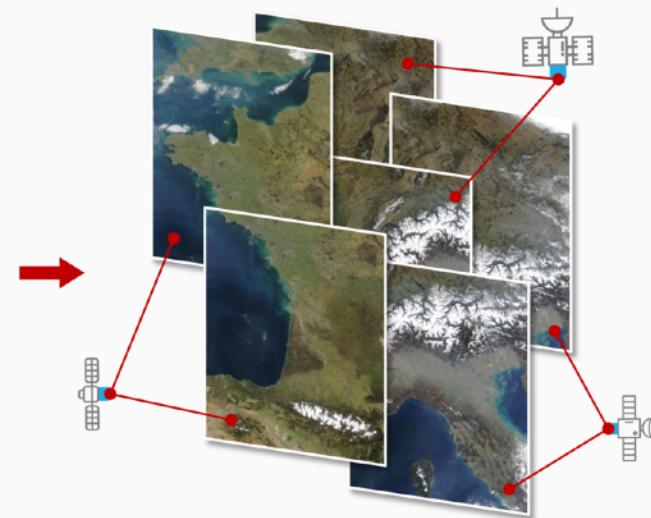


# TYPICAL REQUESTING FLOW

Using constrained mission scheduling, **optimal scenarios** are automatically generated from execution to data delivery.



Mission Constraints



Execution &amp; Data Delivery

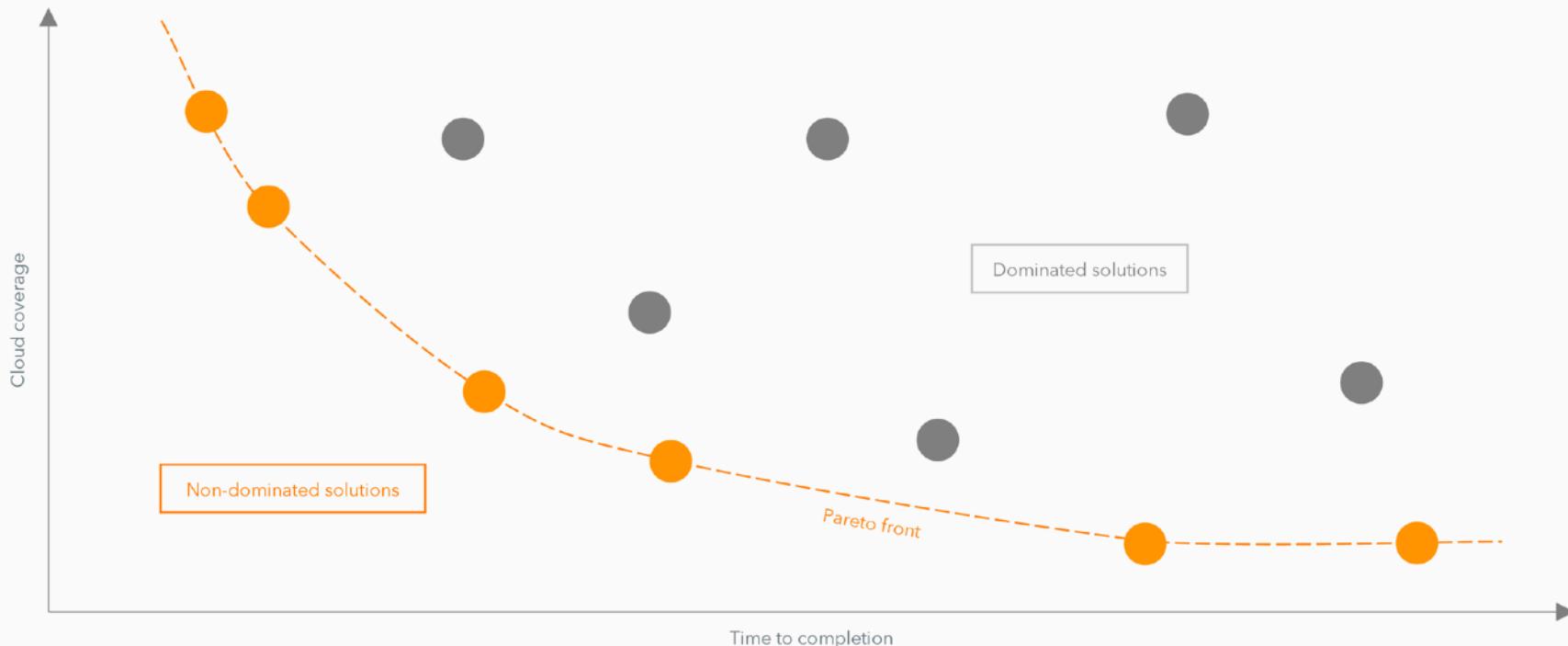
# REQUESTING FORMALISM

Mission-agnostic set to gather execution **requirements**.



Set of potential execution **plans**, each compatible with the requirements.

# REQUESTING TRADE-OFFS



# REQUESTING METRICS



A satellite map of the Middle East and North Africa. A large green polygon is drawn over the Red Sea, parts of the Persian Gulf, and the northern coast of Africa. A small green dot is located near the center of the polygon.

Request > 3b23e0cf

Accepted Confirmed Scheduled Completed

Fragment f4828d4a-fe38-4ebc-81ee-571221c9c19b

Start 2022-09-13 10:32:50.422 UTC  
End 2022-09-13 10:49:05.322 UTC  
Duration 00:16:15  
Time to completion -

Satellite Trajectory Profile

Summary	lat. Latitude	lat. Longitude	Mean altitude
Mean latitude	25.3878 °	Mean longitude	56.5590 °
Mean altitude	518.42 km		

Satellite Altitude Profile

Summary	Quaternion B → ECI	Data
Status	Delivery	Info

2022-09-13 11:02:48 UTC Now-1h - Now+2h

Request > 3b23e0cf

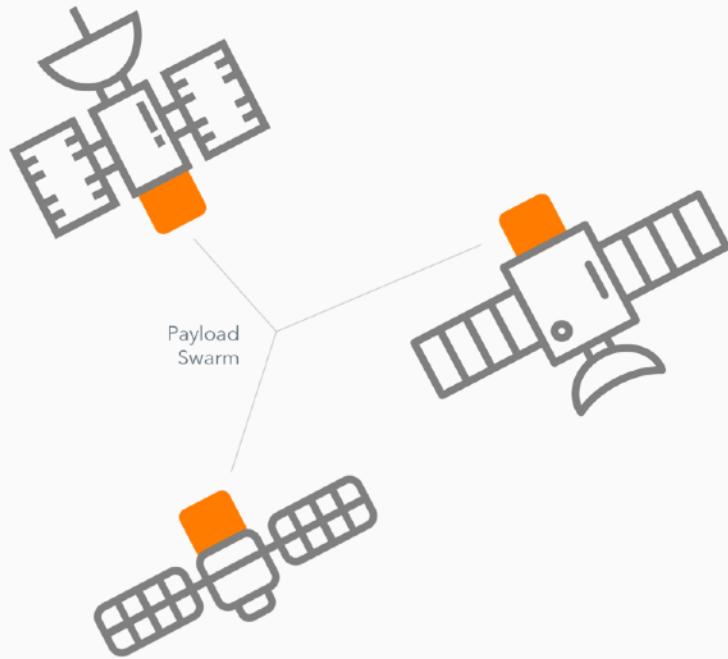
Refresh Edit

Timeline

SMS Manual Sequence	PDP S	R	P
OBCI	PDP S	R	SIM S P
PDU			
PDP	P	PDP S	R
Simera		d Tra	
PIC	10:35	10:40	10:45 PDP D

Status Delivery Info

# PAYLOAD SWARMS

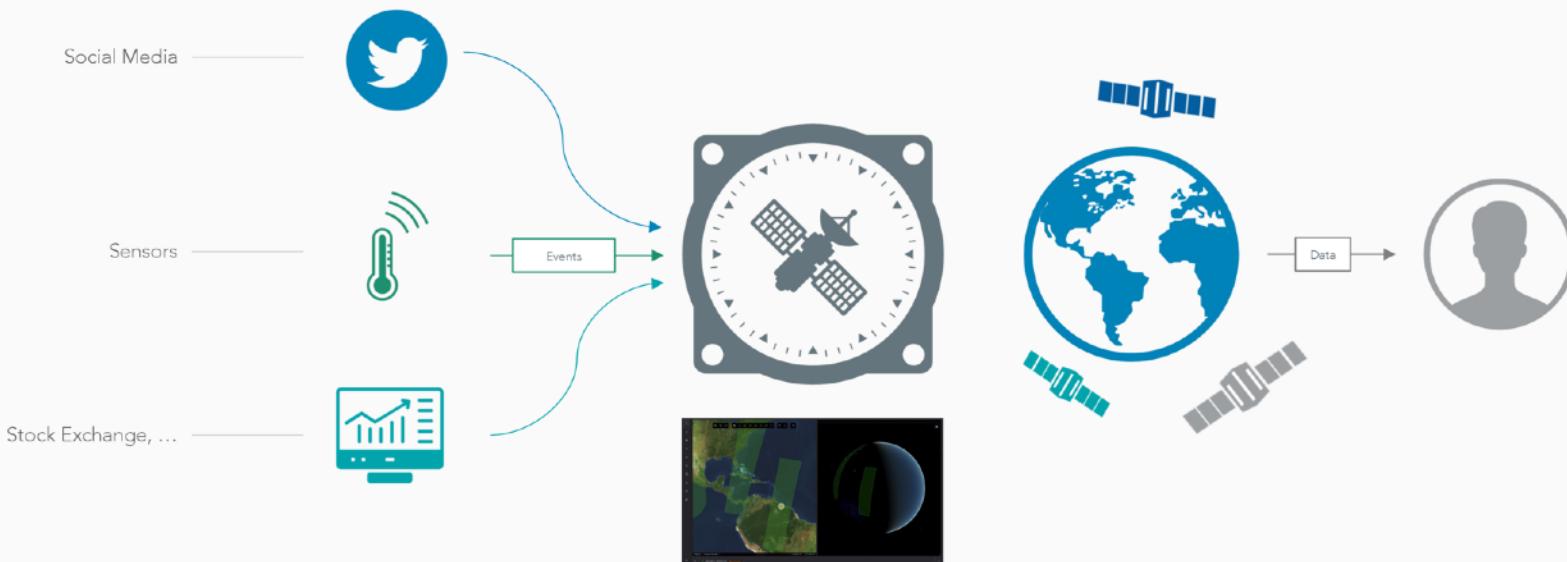


Payloads distributed across multiple  
spacecraft can be controlled  
**as a single integrated system.**

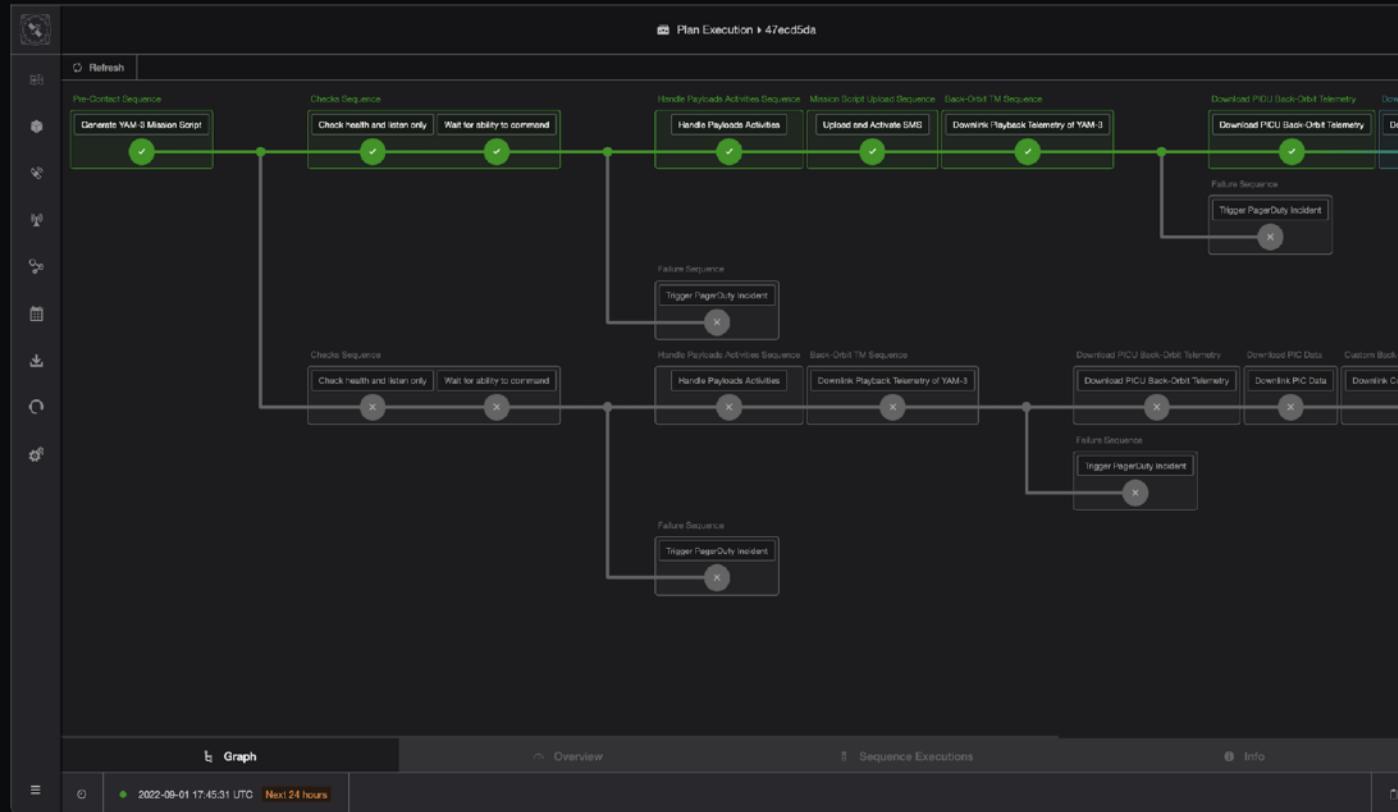
Cockpit automatically dispatches work,  
optimally leveraging available assets.

# EVENT-DRIVEN FLOW

Users can define **event-driven pipelines** to further automate their mission execution.



# AUTO-PILOT ENGINE



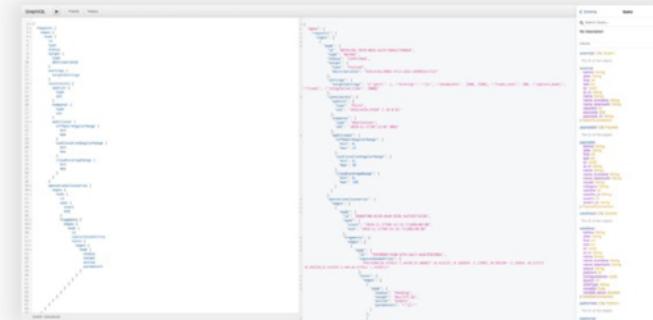
# AUTOMATIC DATA PROCESSING & DELIVERY

# INTERFACES

Leveraging the latest **web technologies**,  
Cockpit exposes interfaces for interactive and programmatic access.

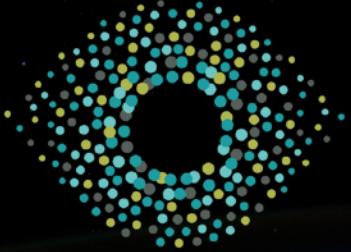


Graphical Web Apps



APIs





LOFT ORBITAL

THANK YOU!



Space Made Simple