A New Architecture for Visualization: Open Mission Control Technologies

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A New Platform

- Why a new platform?
- Capabilities
  - All of your data in one place - no more application switching
  - View your data the way you want to see it
  - Compose your data without programming
  - Web based, desktop and mobile
  - Data source integration
  - Plug in architecture for customization
  - Open Source

http://nasa.github.io/openmct/
Open Source

• Learn about it
  • http://nasa.github.io/openmct/

• Try it
  • https://openmct-demo.herokuapp.com

• Get the code
  • https://github.com/nasa/openmct
Open Source

- Enables Collaboration
- Reduces/Eliminates ownership issues
- Provides immediate access without restriction

http://nasa.github.io/openmct/
Missions

- JPL
  - Mars 2020
  - Mars Science Lab (Beta Test)
  - Earth Science (evaluating)
- Ames Research Center
  - Resource Prospector Lunar Rover

http://nasa.github.io/openmct/
All Your Data in One Place
View as you want it

http://nasa.github.io/openmct/
Composition - Create
Compose in Layouts

http://nasa.github.io/openmct/
Mars Science Lab Composition (JPL)
Resource Prospector Composition (ARC)
On the Desktop

@JPL

@ARC
Mobile

iPad

Phone
Architecture

- JavaScript
- HTML and CSS
- Domain Objects
  - Identifier, Model, Dynamic Behavior
- Views

http://nasa.github.io/openmct/
Persistence

- User created objects stored as JSON documents on mission control web services (MCWS) at JPL

http://nasa.github.io/openmct/
Mission Adapters JPL

- Open MCT integrates with mission data sources via adapter plug ins
- Adapters handle requests for real-time subscriptions and/or historical queries
- Views initiate requests for the data they will display, Open MCT Mediates
- Plug in mechanism avoided coupling to specific server side data

http://nasa.github.io/openmct/
Mission Adapters ARC

[Diagram showing the integration of Open MCT, WARP Client, and WARP Server with plugin connections and descriptions.]
VISTA Objects

• VISTA is Open MCT customized by plug ins

• Customized for the JPL Mission Domain

• More objects on the way

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WARP Objects

- WARP is Open MCT, customized by plugins
- Deployed at ARC

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Compare

Open

WARP

VISTA
WARP Objects
VISTA at JPL
Mobile WARP for Rover Ops