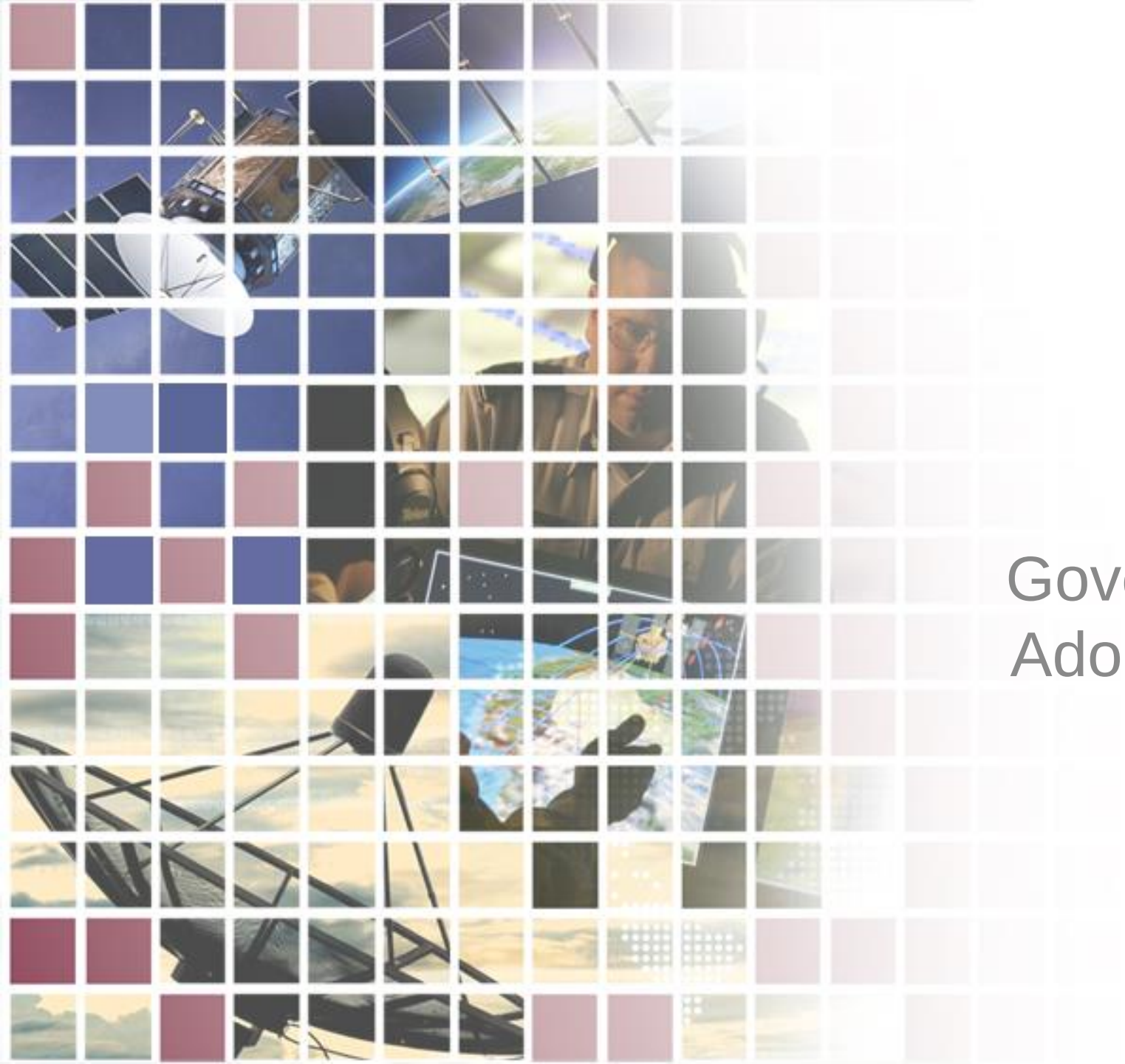


quantum

READY FOR WHAT'S NEXT...

Government and IC Program Adoption of Virtualized Small Sat Ground Systems

KRATOS

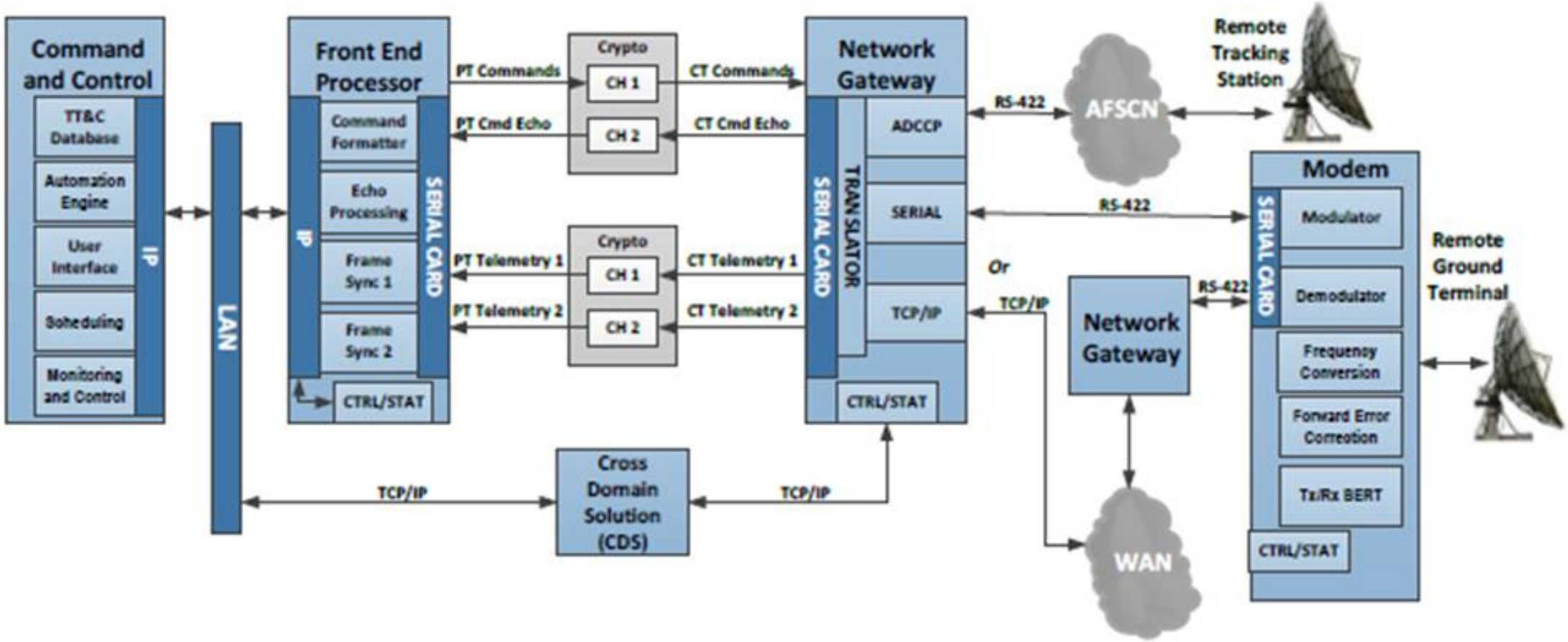
What does it mean to be Virtual?

- For our purposes, we define virtual as a system or piece of equipment requiring only COTS hardware in standard configurations to run.

- Applying this definition to ground equipment:

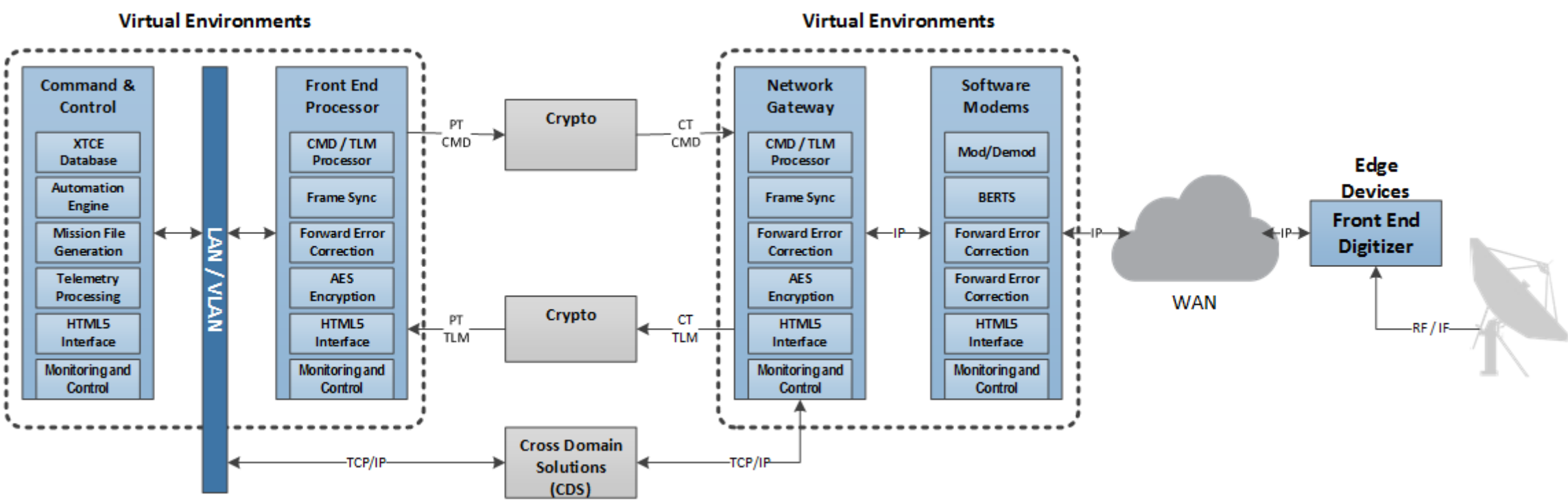
  A virtual ground system or piece of ground equipment can run on a standard server or in a cloud instance with no special or system specific configuration of the underlying hardware

Typical Traditional Ground Systems Architecture



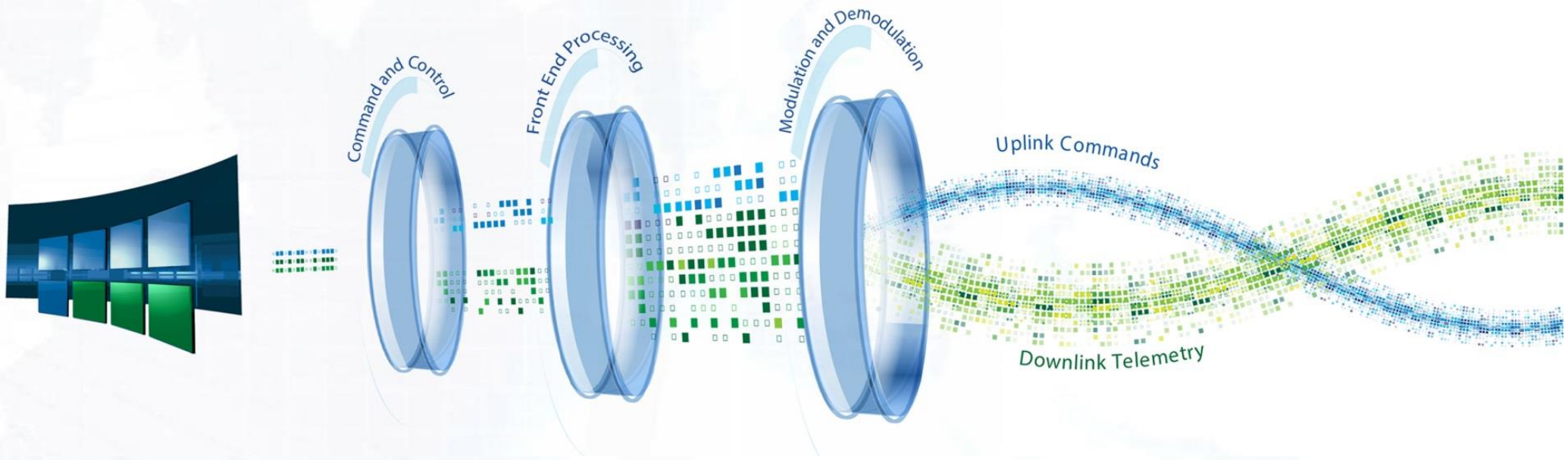
KRATOS

Virtual Architecture



What is quantum …

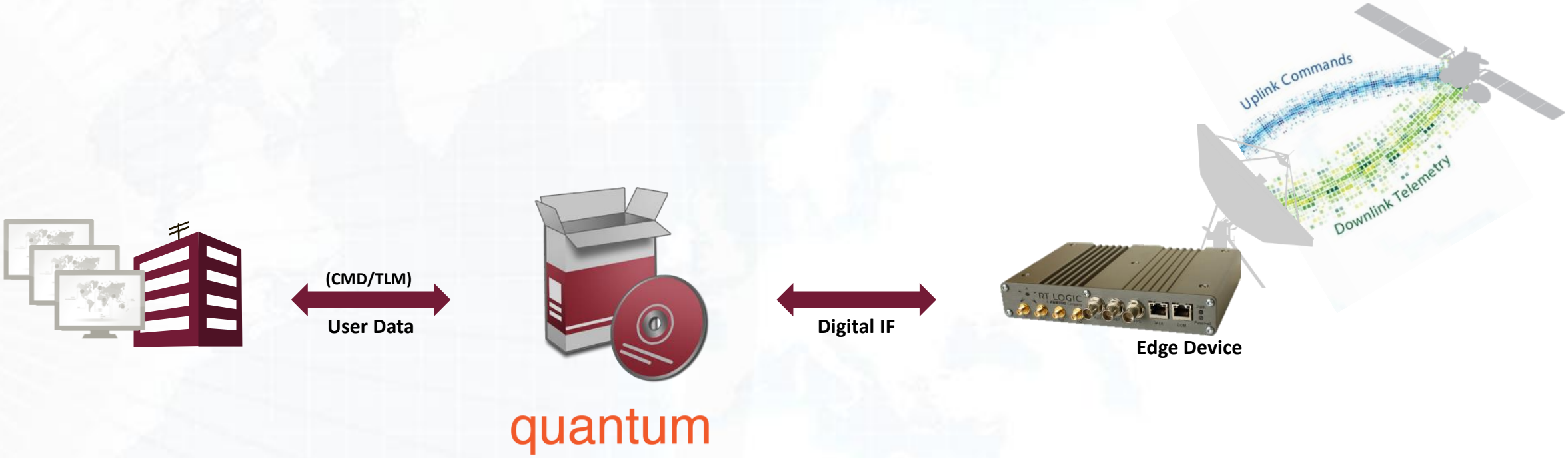
quantum is the Kratos small satellite virtualized product family intended to solve the ground systems need of small satellites. The quantum system consists of both narrowband and wideband offerings.



The system has been designed to support missions through various stages;

i.e. development, integration, launch and operations.

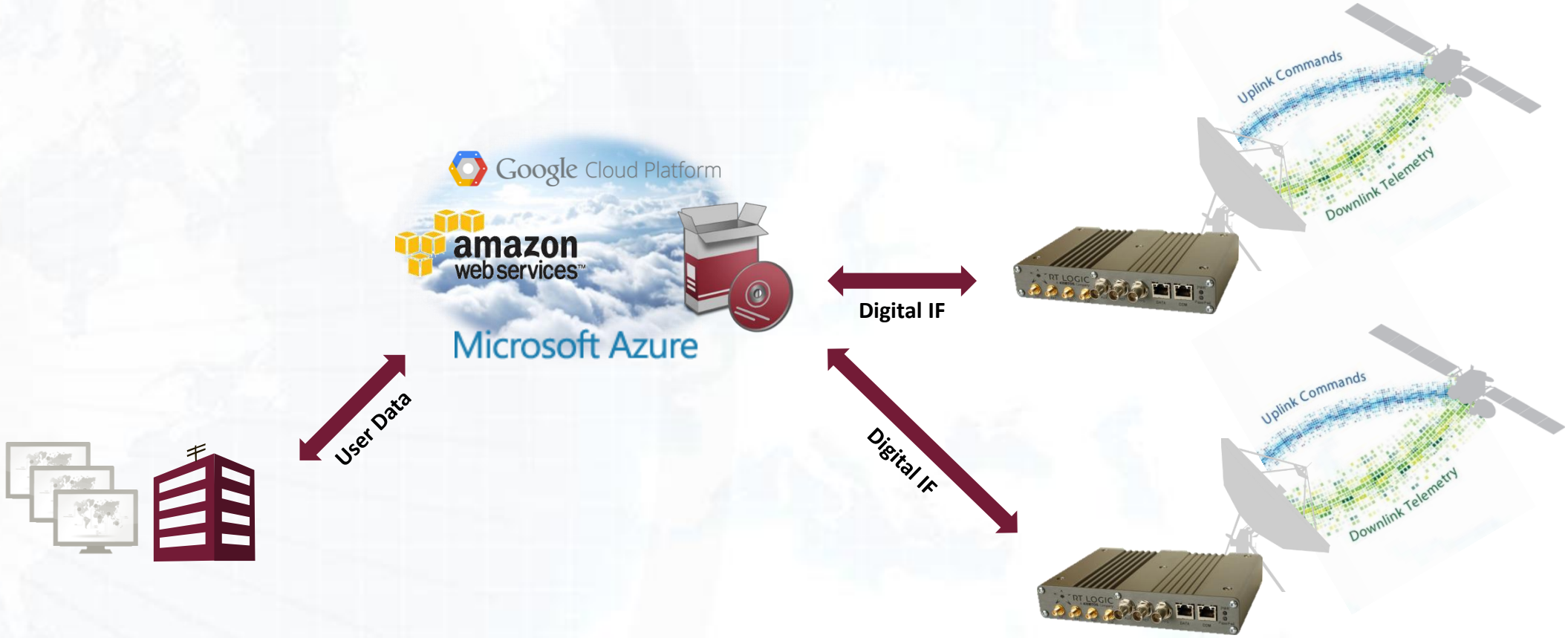
System Architecture



Virtualization & Digital-IF allow for new system architectures

KRATOS

Cloud Processing



Virtual ground equipment can be hosted on a public or private cloud infrastructure

KRATOS

Adopters of quantum

NASA Wallops

- Automation
- Connectivity
- Reduced operator interaction
- Customer compatibility testing

KSAT

- Reduced operating costs
- Redundancy
- Flexible and highly configurable satellite system

Virtual Ground Systems

Multi-Mission

- Configuration management
- Lights-out ability
- Test like you fly

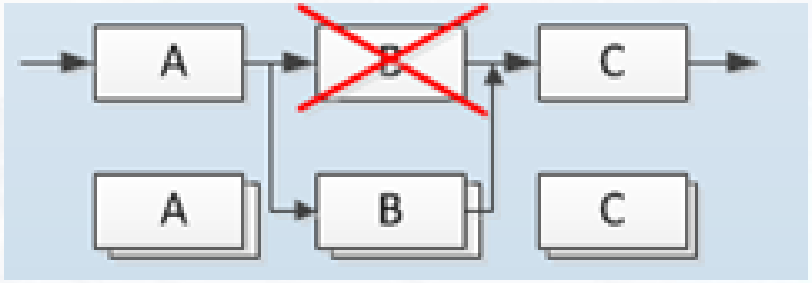
Cost / Delivery

- Software Subscriptions
- Days / Weeks not Months
- Virtual hanger-queens

Virtual Ground Systems (cont.)

Redundancy & Resiliency

- High Availability
- Lossless Failover
- “Pooled” sparing models



The World of IT

- Network Management
- Shared Resources
- Software Subscriptions

Conclusion

- Virtual environments;
  - enable commercial, government and national programs to support small satellite missions
  - allow for the deployment of new ground stations quickly and efficiently
- Virtual solutions can also be used to augment existing traditional systems
- The quantum product line is an example of how virtual environments are not only ready for missions today but also an example of how programs are actively deploying virtual ground systems.