



The Connected Oilfield and The Cloud

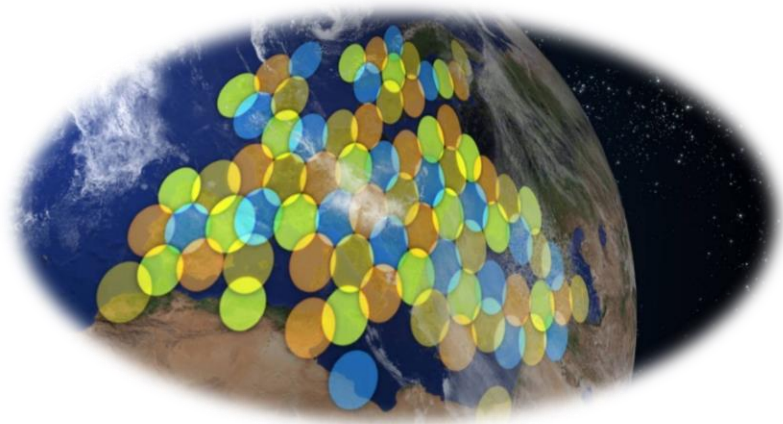
Mark Lambert
President - UK



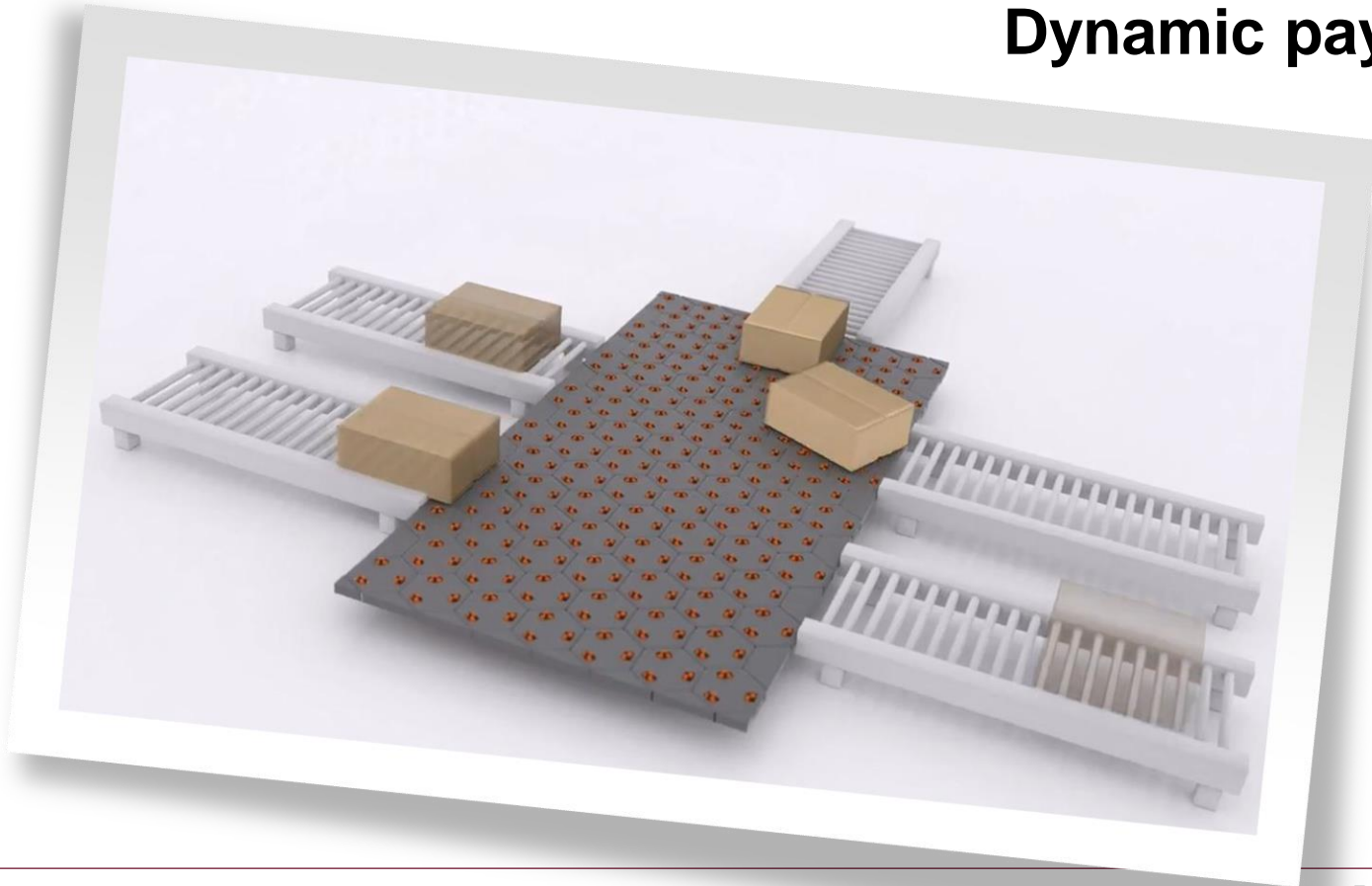
Bent pipe



Spot beams



Dynamic payloads

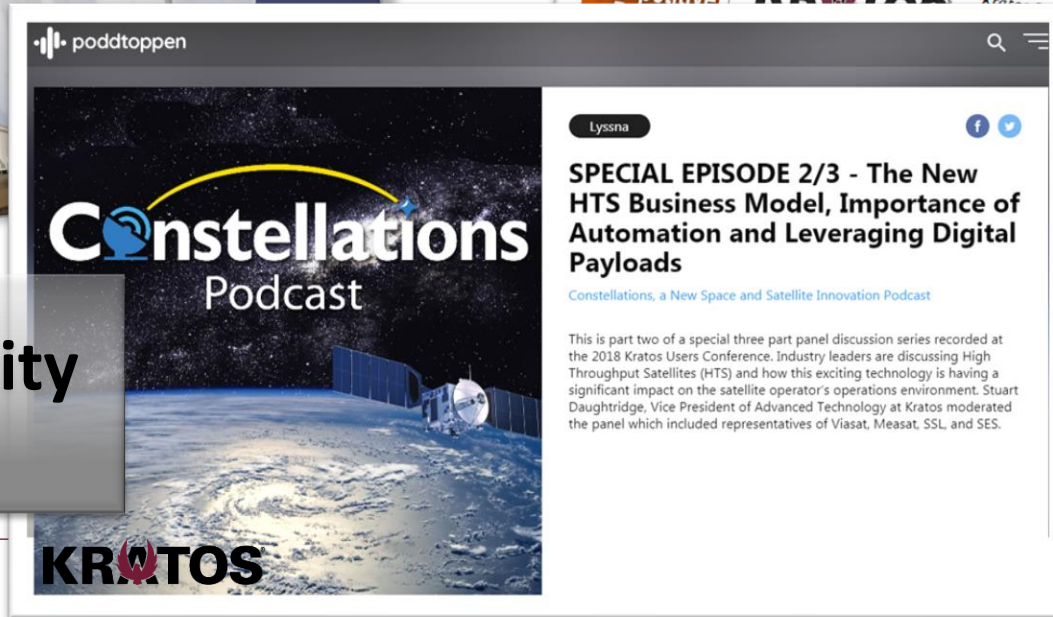


KRATOS[®]





An authority
on HTS



KRATOS
READY FOR WHAT'S NEXT™

Virtual Ground

Kratos are transitioning satellite ground systems to the cloud through the introduction of Digital Gateways

Data systems become a collection of Virtual Network Functions



Satellite and Ground Elements Easily Orchestrated to Provide Dynamic Services



Image courtesy of ["rechanfle", flickr](#)

Application to Digital Oilfield

- Services spin up and down to suit operational requirements
 - ▣ Short-term, high-capacity links for trunking seismic data
- CAPEX moves to OPEX
- Enhanced cyber security





Breaking new *Ground*...

- Kratos' Space team is one of the most experienced in the industry, having delivered satellite infrastructure across the World for more than 35 years
- We deliver the state-of-the-art, and develop the next generation
- Our knowledge significantly lower risk
- Our solutions enable revenue

Kratos: Leading the way to the Ground Station in the Cloud



Cloud enabled management across domains in a unified platform



RF over IP provides a clear path to a virtual/cloud infrastructure



IP Enabled Infrastructure provides site diversity and minimizes ground station equipment duplication



Enable commercial, government and national programs to support multiple satellite missions (small sat, LEO, MEO, and GEO)



Leverage industry standard Vita-49 packets for interoperability with 3rd party cloud applications.



Management and deployment of ground operations can be tied to devops



Flexible antenna placement minimizes operational expense



Achieve greater resiliency requirements for defense missions, especially pertaining to the new battlefield in space

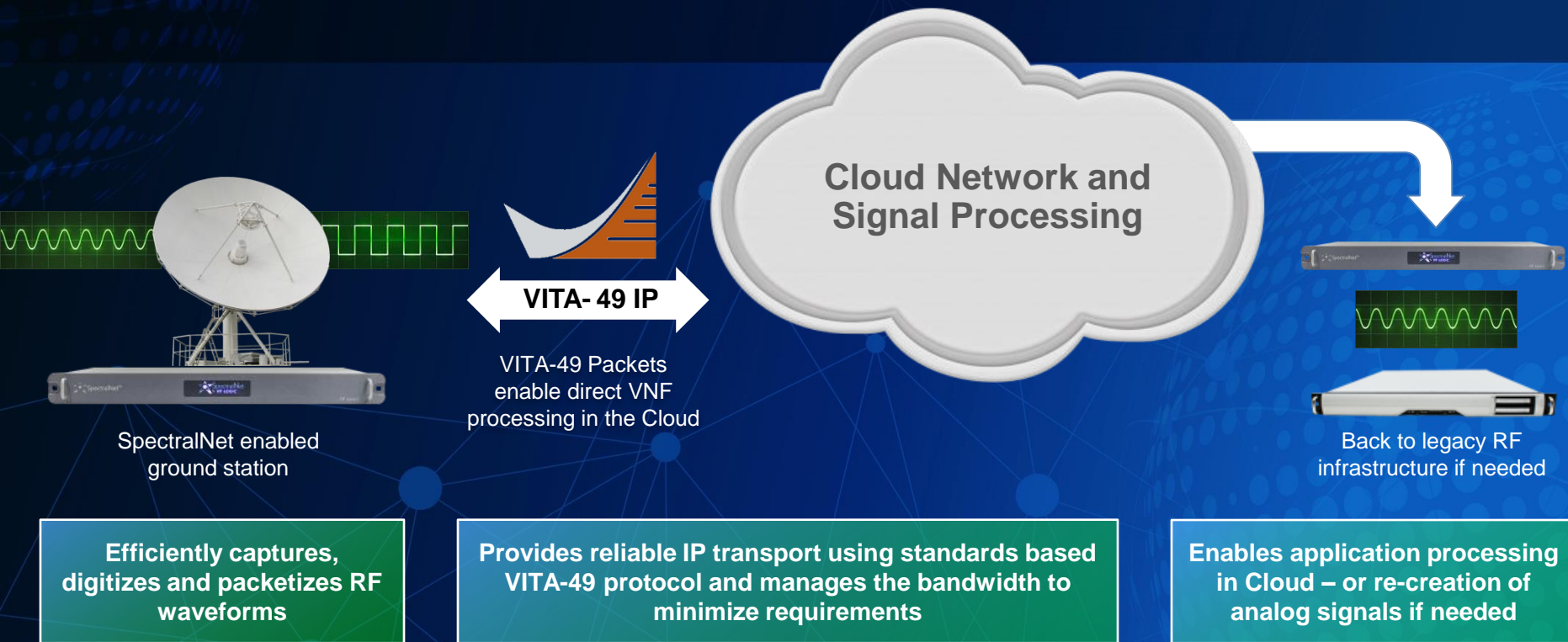
Digital IF: Your On-Ramp to the Cloud

Digital IF (Intermediate Frequency) extends the transport of analog IF data to IP-based networks
Also referred to as “RF over IP,” “Packetized IF” and “IF over IP”

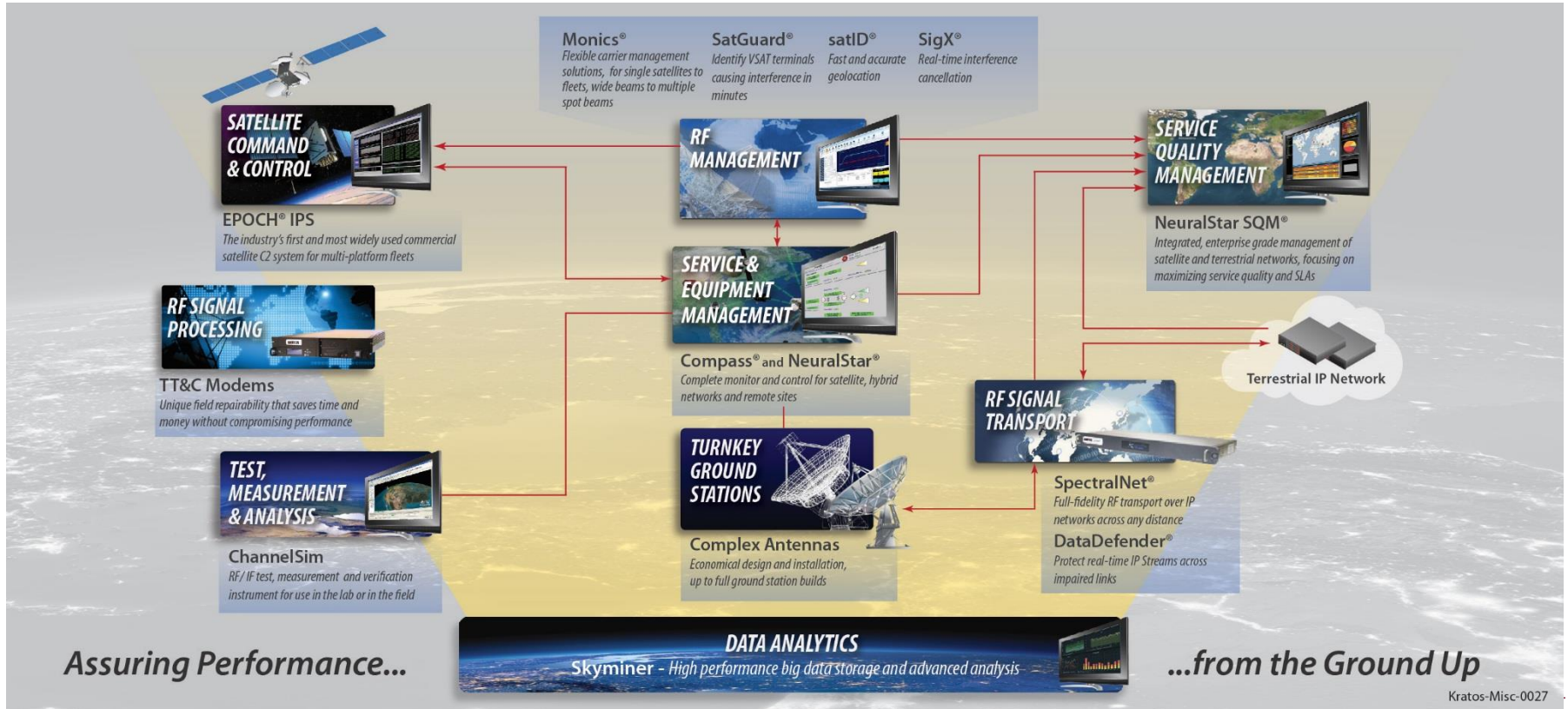
- Digitizes and transports RF signals in real-time
- Eliminates distance limitations
- Moves spectrum deterministically
- Enables optimal antenna placement
- Opens the door to cloud signal processing



SpectralNet: RF to IP Conversion and Transport



End-to-End System Command and Control



Kratos: Your Integrated Ground Segment Expert



30 year track record of delivering high quality, on-time, integrated solutions



Shortens time-to-market which results in faster time-to-revenue and improved profitability



RF over IP provides a clear path to a virtual/cloud infrastructure



Geo-location of sources of interference allows for remedial action without impacting the network



Kratos's own antenna products ensure quality and performance



Automation and integration with other Kratos products and 3rd party apps reduces OPEX and enables dynamic service provisioning



Spectrum analysis and signal processing technologies to protect and enhance transmission



Optimal antenna sizing and placement reduces CAPEX and minimizes operational expense



Big Data Network analysis and machine learning enables problem ID + prediction and solution proposal

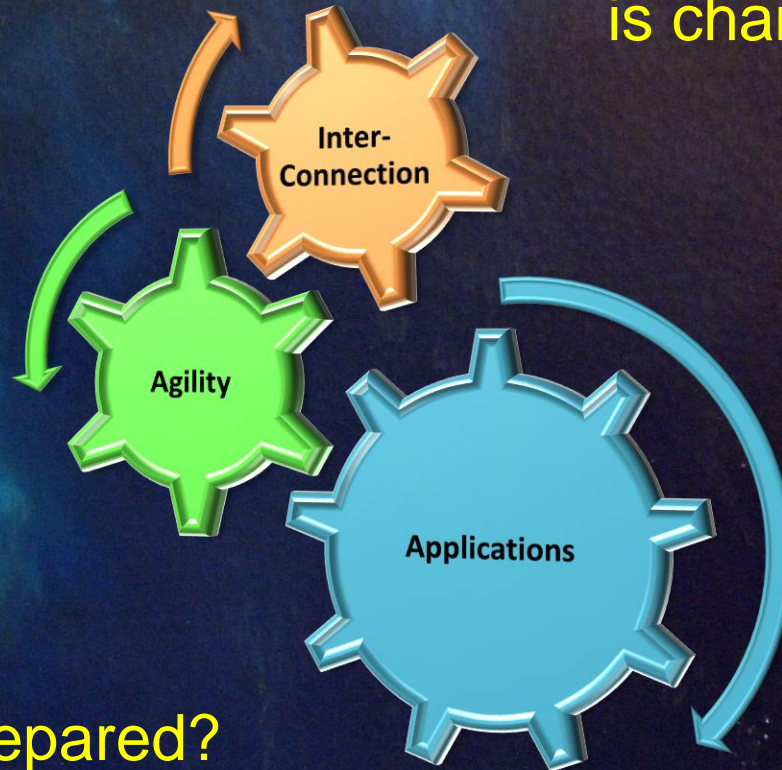
We don't deliver just products ...

... We deliver a capability



Enabling our customers to
deliver their own strengths

The satellite landscape
is changing



Are you prepared?

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