SATELLITE **M2M**

KEPLER COMMUNICATIONS

KEPLER

MISSED INSIGHTS

"GATHERING THE WORLDS INFORMATION"

PROBLEM #1

CONNECTIVITY

Realtime 24/7 Access

↓

Non-Realtime

Ku Band

15 Km Radius

Fits IoT Requirements

PROBLEM #2

SATELLITES

Large

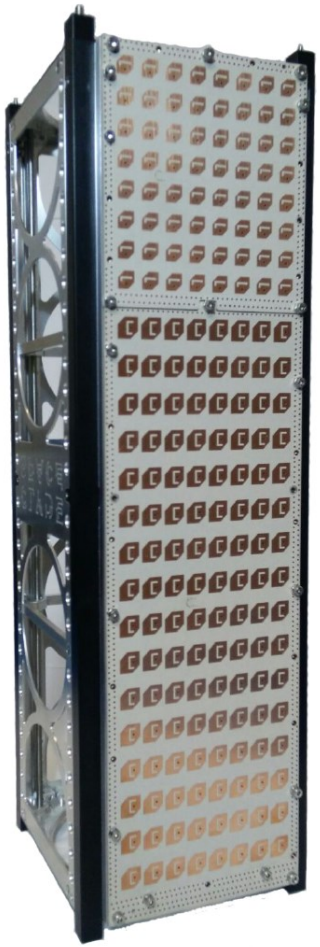
Expensive

Primary Payload

Development Cycle

Inflexible & Outdated

KEPLER **M2M NANOSATELLITES**



1/100

The size and cost of traditional satellites

9 mo

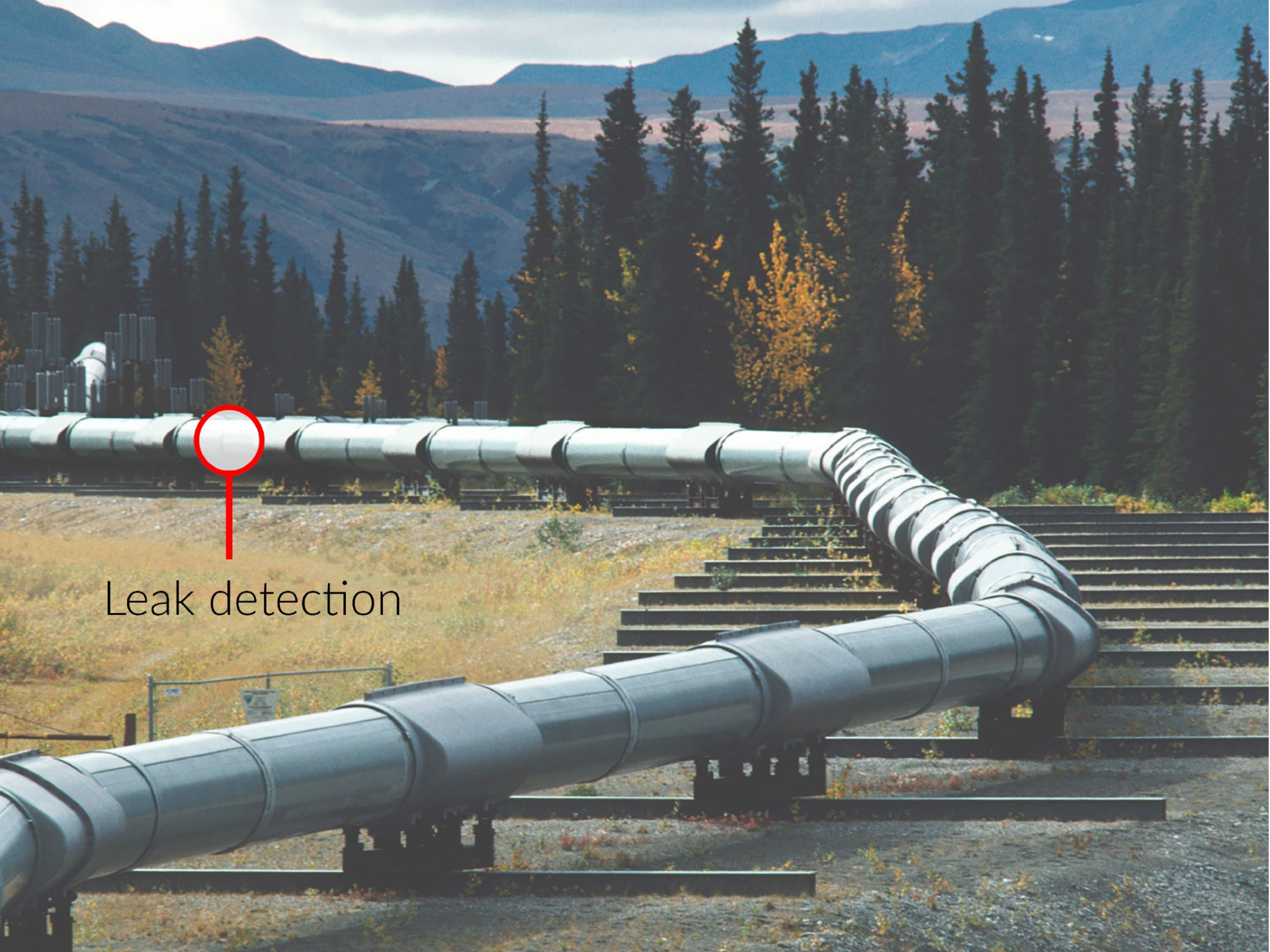
Development cycle from concept to launch

Utilities

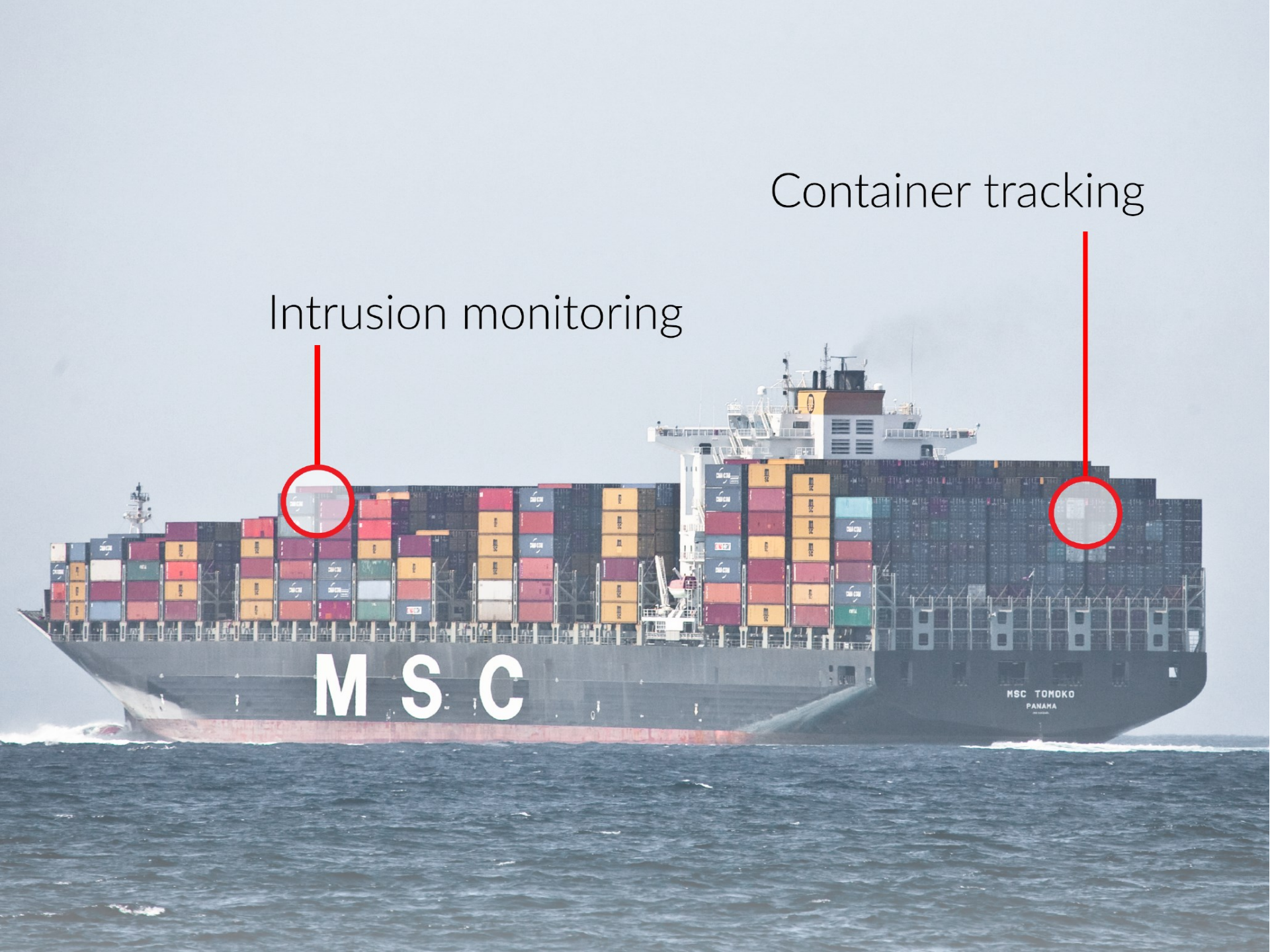
Oil & Gas

Telematics

Maritime


Leak detection


Activity monitoring
Injury reports


Container tracking
Intrusion monitoring
MSC
MSC TOMOKO
PANAMA

REGULATORY **CHALLENGES**

CubeSats in (V)LEO
Inherently Different

AI 7 - BIU

Altitude

Random Orbits

Frequency Hoping

Variable Bandwidth

2-3 Year Replenishment

Kepler

600 Km

4 Planes

1x 3U NanoSat

November 2017

Current Proposition

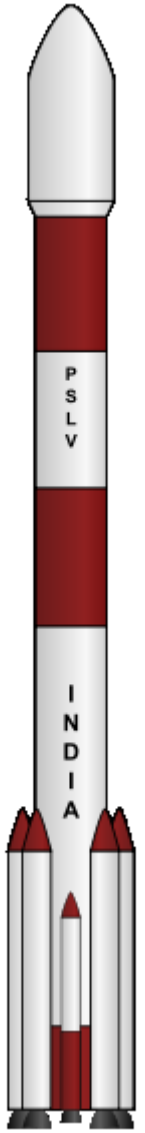
±50 Km @ LEO

1 Sat Each Plane

Second Launch

Q1 2018

→ Completing Kepler's CR/C was… Interesting



REGULATORY **CHALLENGES**

CubeSats in (V)LEO
Are Disadvantaged

WP7 – TT&C
400 MHz
Not Coordinated
PFD Requirements
CSSMA

Filing Costs
Disproportionate
Missed Bands
TT&C
Hardware Vs Reg

Representation
Mobile
GEO/HEO/MEO
LEO
? CUBESAT ?

Moratorium
Canada not issuing licenses

US 4.4
Stimulates Investment
Bypass Regulations

ISED Refused 4.4

CLOSING **REMARKS**

(V)LEO Nano satellites are cheap, just as technologically advanced if not more so, versatile, add little to no debris and their numbers are only going to increase

ARSAT – Recognizes the need to support small satellites and encourage cheap connectivity
Hughes – Recognizes that regulatory costs filter down to service costs and should be kept low
INVAP – Discussed how interference is an ever increasing problem, regardless of size
Inmarsat – Highlighted the challenges of BIU which extends into (V)LEO
Hispasat – Recognized that regulation should support new operators and investment (US / 4.4)
Intelsat – Showed how GEO and LEO can coexist to create a complimentary service

Kepler is on a mission to gather the world's information at a fraction of the cost of existing systems

2017	2018	2020
1 Satellite	2-5 Satellites	40+ Satellites
Global 90 Min Latency	Phased Arrays	<1 Min Latency
	2024	
	IoT in Space	

SATELLITE **M2M**

KEPLER COMMUNICATIONS

NICK SPINA
MANAGER – LAUNCH & REGULATORY

www.keplercommunications.com
contact@keplercommunications.com