What DevSecOps can learn from Elon Musk

Joseph Bernie, Senior Solutions Engineer
Paul Horton, Senior Solutions Engineer
8 different sensors - 8 different functions

- Advanced Very High Resolution Radiometer (AVHRR/3)
- Solar Backscatter Ultraviolet Radiometer (SBUV/2)
- Microwave Humidity Sounder (MHS)
- High Resolution Infrared Radiation Sounder (HIRS/4)
- Advanced Microwave Sounding Unit (AMSU-A)
- Space Environment Monitor (SEM-2)
- Advanced Data Collection System (ADCS)
- Search and Rescue Satellite-aided Tracking (SARSAT)
CubeSats

10 cm per side
A mass of no more than 1.33 kg
Commercial of the shelf (COTS)
Open Source Components

90% of an application is made up of open source components

21,000+ new versions of open source are released per day by suppliers (or project managers)

Source: 2020 State of the Software Supply Chain Report, Sonatype
INCREASE IN DOWNLOADS
Year Over Year 2020 – 2021

- **Java**: 71% increase, from 267 to 457 billion
- **JavaScript**: 50% increase, from 1 to 1.5 trillion
- **Python**: 92% increase, from 66 to 127 billion
- **.NET**: 78% increase, from 44 to 78 billion

SOURCE: 2021 STATE OF THE SOFTWARE SUPPLY CHAIN REPORT BY SONATYPE
Back to Satellites...
Mars Oasis
"a set of practices intended to reduce the time between committing a change to a system and the change being placed into normal production, while ensuring high quality"
Large Satellites

CubeSat

Falcon 1

Falcon 9

Reusable landing

Crewed flight

Starship

Monolithic applications

DevOps

Containers

Microservices

Starman
Security
/sɪˈkjʊə.rə.ti/

The state of being free from danger or threat.

Safety
/ˈseɪfti/

The state of being protected from danger or harm
"a set of practices intended to reduce the time between committing a change to a system and the change being placed into normal production, while ensuring high quality"
Human-Rating Requirements for Space Systems

Responsible Office: Office of Safety and Mission Assurance

Table of Contents

Change Log

Preface

P.1 Purpose
P.2 Applicability
P.3 Authority
P.4 Applicable Documents
P.5 Measurement/Verification
P.6 Cancellation
“The space system shall provide the capability to sustain a safe, habitable environment for the crew.”

“The space system should be inherently safe or designed to minimize risk (e.g., no exposed sharp edges, no exposed high temperature surfaces)”
“The space system shall be designed to tolerate inadvertent operator action (minimum of one inadvertent action), as identified by the human error analysis, without causing a catastrophic event.”
“The space system shall provide the capability to isolate and recover from faults identified during system development or mission operations that would result in a catastrophic event.”
“The crewed space system shall provide the capability for autonomous operation of system and subsystem functions which, if lost, would result in a catastrophic event.”
“The space system shall provide the capability to utilize health and status data (including system performance data) of critical systems and subsystems to facilitate anomaly resolution during and after the mission.”
Nexus automatically enforces open source policy and controls risk across every phase of the SDLC.
Helpful Links:

**BOM Doctor** [http://bomdoctor.sonatype.dev/](http://bomdoctor.sonatype.dev/)


**Integrations** [https://help.sonatype.com/integrations](https://help.sonatype.com/integrations)