EOEPCA: Your EO Exploitation Platform out-of-the Box
Platform Architecture and Interoperability

Phil Beavis (Telespazio UK)
Cristiano Lopes (ESA)
Maciej Krzyżanowski (CEO of Cloudferro and EARSC Director)
Richard Conway (Telespazio UK)
Angelos Tzotsos (EOFarm)
Fabian Schindler (EOX)
Fabrice Brito (Terradue)
Tiago Fernandes (Elecnor Deimos)
Bernard Valentin (Space Applications)
Emmanuel Mathot (Terradue)
Günther Landgraf (ESA)

ESA Phi-Week 2021 Side Event

15 October 2021

Aims

❑ Explore the challenges, especially of interoperability, in EO big data platforms

❑ Highlight some relevant best practice, open standards and software

❑ Present work in progress under the ESA sponsored project: "EO Exploitation Platform Common Architecture (EOEPCA)

We should have time for questions and discussion.
Please post questions and comments in the chat channel.

Agenda

Welcome & Introduction	Cristiano Lopes (ESA)
Digital Platforms – a strategic asset in completion for the next digital economy	Maciej Krzyżanowski (CEO of Cloudferro and EARSC Director)
A Common Architecture for EO Exploitation Platforms	Richard Conway (Telespazio)
Resource Management: Data, Applications and Catalogues	Angelos Tzotsos (EOFarm); Fabian Schindler (EOX)
Processing & Chaining: Applications Deployment and Execution	Fabrice Brito (Terradue)
User Management: Authentication, Authorization, Accounting	Tiago Fernandes (Elecnor Deimos)
Resources available from the EOEPCA project	Phil Beavis (Telespazio)
Building and Operating a service based on EOEPCA (1)	Bernard Valentin (Space Applications)
Building and Operating a service based on EOEPCA (2)	Emmanuel Mathot (Terradue)
ESA support for new adopters operating their own platform	Günther Landgraf (ESA)
Conclusions	Phil Beavis (Telespazio)

Welcome & Introduction

Cristiano Lopes (ESA)

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Team

EOEPCA is sponsored by European Space Agency (ESA) as a collaborative project

Engineering

Developing the architecture and software

- ❑ Telespazio UK – Prime contractor and systems engineering
- ❑ EOX (with EOfarm) – Domain Expert in Resource Provisioning and Management
- ❑ Terradue (with Terradue UK) – Domain Expert in Processing and Chaining
- ❑ Deimos Space (with Deimos Engenharia) – Domain expert in User Management

Operators

Demonstrating and verifying the components

- ❑ Space Applications Services
- ❑ Terradue

Support

Other partners providing support

- ❑ EARSC – Communications
- ❑ OGC – Standards and best practice
- ❑ STFC – Systems engineering

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A Common Architecture for EO Exploitation Platforms

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Processing & Chaining:
Applications Deployment and Execution

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User Management:
Authentication, Authorization, Accounting

Tiago Fernandes (Elecnor Deimos)

Resources available from the EOEPCA project

Phil Beavis (Telespazio UK)

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Everything is free and open, available without registration!

EOEPCA
BETTER ACCESS TO EARTH OBSERVATION

Project Website – start here…

https://eoepca.org/

- ❑ About the Project and Team
- ❑ Architecture Documents (Links)
- ❑ Software Building Blocks (Links)
- ❑ News
- ❑ Forum

Architecture Documents

All the documentation is freely available at https://eoepca.github.io/

❑ Use Case Analysis

https://eoepca.github.io/use-case-analysis

❑ Master Architectural Design Document (MSADD)

https://eoepca.github.io/master-system-design/

❑ Master Interface Control Document (MSICD)

https://eoepca.github.io/master-system-icd/

Software

All the source code is freely available at https://github.com/EOEPCA

A selection of building blocks are in development, addressing the three key domains identified in the architecture:

- ❑ **Resource Management** - catalogue and discovery of data and applications
- ❑ **Processing and Chaining** - deployment and execution of applications
- ❑ **User Management** - identity, security, access control and accounting

Release 0.9 includes beta versions of the following building blocks:

- ❑ Login Service
- ❑ User Profile
- ❑ Policy Enforcement Point (PEP)
- ❑ Policy Decision Point (PDP)
- ❑ Application Deployment & Execution Service (ADES)
- ❑ Processor Development Environment (PDE)
- ❑ Resource Catalogue
- ❑ Data Access Services
- ❑ Workspace

Docker images at https://hub.docker.com/u/eoepca

Building and Operating a service based on EOEPCA (1)

Bernard Valentin (Space Applications)

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Building and Operating a service based on EOEPCA (2)

Emmanuel Mathot (Terradue)

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ESA support for new adopters operating their own platform

Günther Landgraf (ESA)

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Conclusions

Phil Beavis (Telespazio UK)

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Questions and Discussion

Next Steps

Next steps for

❑ Software release version 1.0 "minimum viable product" in final testing, expected November 2021

❑ Coordination with other ESA platform initiatives including Euro Data Cube and OpenEO

❑ Ongoing development of software building blocks and incremental releases

❑ Operational platforms from Space Applications and Terradue

Participate:

❑ Review the documents

❑ Try the software

❑ Questions and support via the Forum: https://eoepca.org/forum/

❑ Tweet: @ EOEPCA #EOEPCA

❑ Email: Eoepca.SystemTeam@telespazio.com

"Your EO Exploitation Platform out-of-the Box"

Visit https://eoepca.org

THANK YOU

ESA Phi-week, 15 October 2021