Stairway to Cloud
Sebastian Scholze
Agenda

• Idea and Concept
  • Motivation
  • Approach
  • Target Users & Value

• SmartCLIDE Pilots

• Features
  • What is SmartCLIDE?
    • Discovery of Services
    • Composition of new Services
  • Features Map
  • Whole Life cycle Support IDE

• Roadmap
Facts

- **Project Title**
  - Smart Cloud Integrated Development Environment supporting the full-stack implementation, composition and deployment of data-centered services and applications in the cloud

- **Duration**
  - 01.2020 – 12.2022

- **Total cost**
  - €4,935,381

- **EC Contribution**
  - €4,935,381

- **Programme**

- **Further information**
  - smartclide.eu
**SmartCLIDE Motivation**

**Digital transformation** is changing every sphere of society at a very fast pace.

Technological and cultural breakthroughs.

**Cloud computing** and **agile methodologies** as the key enablers of digital transformation

SmartCLIDE aims to **boost** the adoption of **Cloud and Big Data solutions**

SmartCLIDE  |  Cloud Computing  |  DIGITAL TRANSFORMATION
## SmartCLIDE Approach

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<th>Limitations</th>
<th>Aims</th>
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<td>Creating solutions from scratch is time consuming, complex and expensive.</td>
<td><strong>Faster and more effective development</strong> of cloud and big data services</td>
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<td>Compositions of services is limited due to non-uniform classification and documentation, and a QoS and Security compromise</td>
<td>- Deeper <strong>insights</strong> on how cloud and code works</td>
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<td>Predict and control costs is very difficult using <strong>pricing models</strong> of public cloud providers</td>
<td>- More secure and easy way to reuse quality code</td>
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<td>- Gaining trust and facilitating the reuse of services</td>
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<td>- To be a code learning tool</td>
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<td>- Deeper understanding on the costs of big data and cloud</td>
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SmartCLIDE Target Users & Value

Team Value
Scrum Master / Agile Coach
Product Owner
Sponsor
UX / Product Design

*primary user
Developers

Project Value
Product or Service
User Test
Increment

End-Users Value
User Centric
Pilots

• Driven by 4 Pilots

Pilot 1: Platforms for Social Security Organisation

Pilot 2: IoT Catalogue

Pilot 3: Real-Time Communication Platforms

Pilot 4: PDM/PLM/ALM Platforms
What is SmartCLIDE

Cloud IDE
- Smart, cloud-native IDE, based on the coding-by-demonstration paradigm
- Collaboration between different stakeholders

Services Composition:
- Create control, data and operations abstractions
- Combine abstractions to create new services

Services Discovery
- Import/Search and Discover available services and resources (abstractions, data sources, infrastructure resources, data transformations, etc.) from their current IaaS, PaaS and SaaS Providers

Deep Learning
- Automatic Software Classification
- Context Identification and Abstractions Selection
- Programmatic Output Generation
Discovery of Services

- Automatically exposes available resources and cloud services (e.g. VM images with different configurations, already implemented containers, business related services...) from current IaaS, PaaS and SaaS providers, based on:
  - General Purpose
  - Technical requirements

- Provides additional information for better re-use of services and decision making in the creation or composition of new services
  - Description
  - Certifications
  - Other services and applications using the proposed service
  - Opinions from other end-users
  - Comparison with other similar services

- Ontology-based technique to identify cloud service categories
  - By detecting cloud service concepts from cloud service sources
Composition of new Services

- Rapid implementation of new services either creating them **from scratch** or **by composition**.
- **Create** new services indicating the way the resulting service/application will be deployed or the features that will be monitored at runtime.

**High Level Abstractions** at all stages

**Full life-cycle** support

**Version Control** and

**Configuration Management Integration**

**Coding-by-demonstration** and **text notation**

**Comprehensible, reusable** and **directly testable code**

**Insightful source code monitoring**

**Learnable Programming**

**Continuous Integration and Deployment assistance** and **Cost Simulation**
The SmartCLIDE Features Map
Whole life cycle support IDE

Integration with build tools for packaging, virtualization and containerization tools to handle images of environments and perform fast deployments.

**Extreme automatization** concept of DevOps.

Integration of autonomous AI-based Smart Services within the DevOps loops, so end-users will be able to reuse already existing user stories or acceptance criteria, when and where more intensive testing will be required (by monitoring the verification stage), or when is the best moment to build and transport an application to a determined environment.
Roadmap

- End 2020: Concept & Architecture
- Mid 2021: First Prototype
- Mid 2022: Final Prototypes
- End 2022: Demonstration

15.12.2020

Stairway to Cloud
Thank you!

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