

SeCloud

Security-driven engineering of Cloud-based Applications

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Vrije Universiteit Brussel



Agenda

- Motivations and objectives
- Research perspectives and consortium
- Interactions with industry

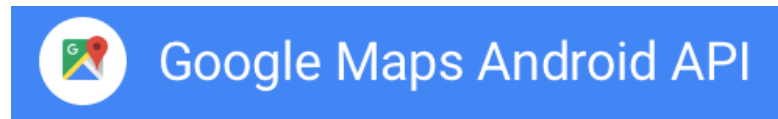
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Cloud services

- Services delivered as utilities over a network
- Services accessible by means of APIs

API economy



API.DATA.BE
Data.be is the first api provider for Belgian Business Information.
Get company information through our simple REST API.

[Request your API Key »](#)

VAT Validity

Validate VAT user input and get back a well formatted Belgian VAT number.

[View details »](#)

Company Status

Is this company still active? Get instant validation to detect closed businesses.

[View details »](#)

Company Info

Retrieve all the company information with one simple request!

[View details »](#)

Cloud-based applications

- Cloud-based applications
 - Applications using Cloud services
 - Almost all new applications are Cloud-based applications

91% of net new software built for cloud delivery in 2014.

Mobile applications: even if mobile applications are not SaaS, they are deployed on cloud.

IDC, 2014

Security

- Cloud-based applications
 - Application using Cloud services provided by **third parties**
- New security challenges introduced by the **multi-party** and **distributed** nature of Cloud-based applications
- Some examples
 - Service availability
 - Data locality
 - Data aggregation / replication

Industrial demand

- Software companies recognize that the ability to offer **secure solutions** is key to the success of their business
 - Still **lack of knowledge** about the specific security risks to the Cloud model
 - Not clear how **security** can be achieved in Cloud-based applications
 - Not clear how **compliance** can be demonstrated and proved to external auditors

Not yet workable solutions

- Emerging technologies and solutions both in **academia** and in the **industry**
 - Only addressing **parts** of the security problems for Cloud-based applications
 - Difficult for software companies to **link and bundle** all these blocks into a workable security solution for their specific context

Needs

- Practical and **proactive** approach (**security by design**)
- Good knowledge of **security risks** specific to Cloud-based applications
- Knowledge must be built upon **different aspects** of the security problems: not only technical aspects

Industrial target groups

- Primary target group
 - SaaS application providers
 - Mobile application providers

In Brussels: 640 companies, 240 of which have more than 1 employee

- Secondary target group
 - Technology providers
 - Security consultants and advisors (processes and development)

In Brussels: 50 companies, 18 of which have more than 1 employee

Main goals

- Performing scientific research
 - **Set of tools, technologies and techniques**
 - **Proactive security approach** of Cloud-based applications
- Conceiving a **security risk management model**
 - Risk evaluation, mitigation responses to critical risks, vulnerabilities and threats
- Involving the industry **as validator**

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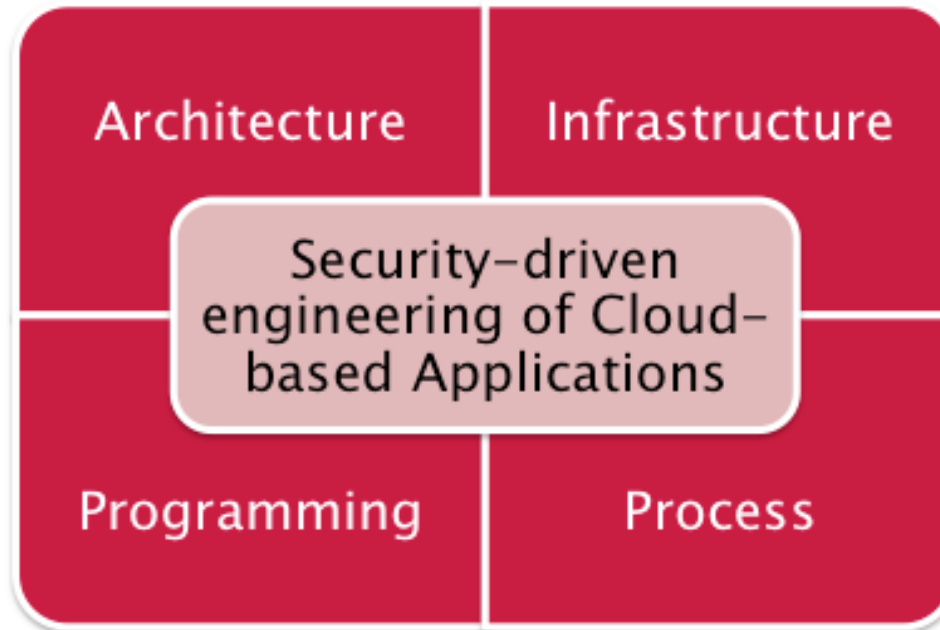
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Research perspectives

- **Proactive** introduction of security in Cloud-based applications **impacts** software companies
 - Reconsidering the **architecture of their Cloud-based application**
 - Selecting and adopting **new security infrastructure, protocols and standards**
 - Reconsidering the **programming technology** used to secure cloud software
 - Changing the **organizational and development process** used to create the solution

Research perspectives

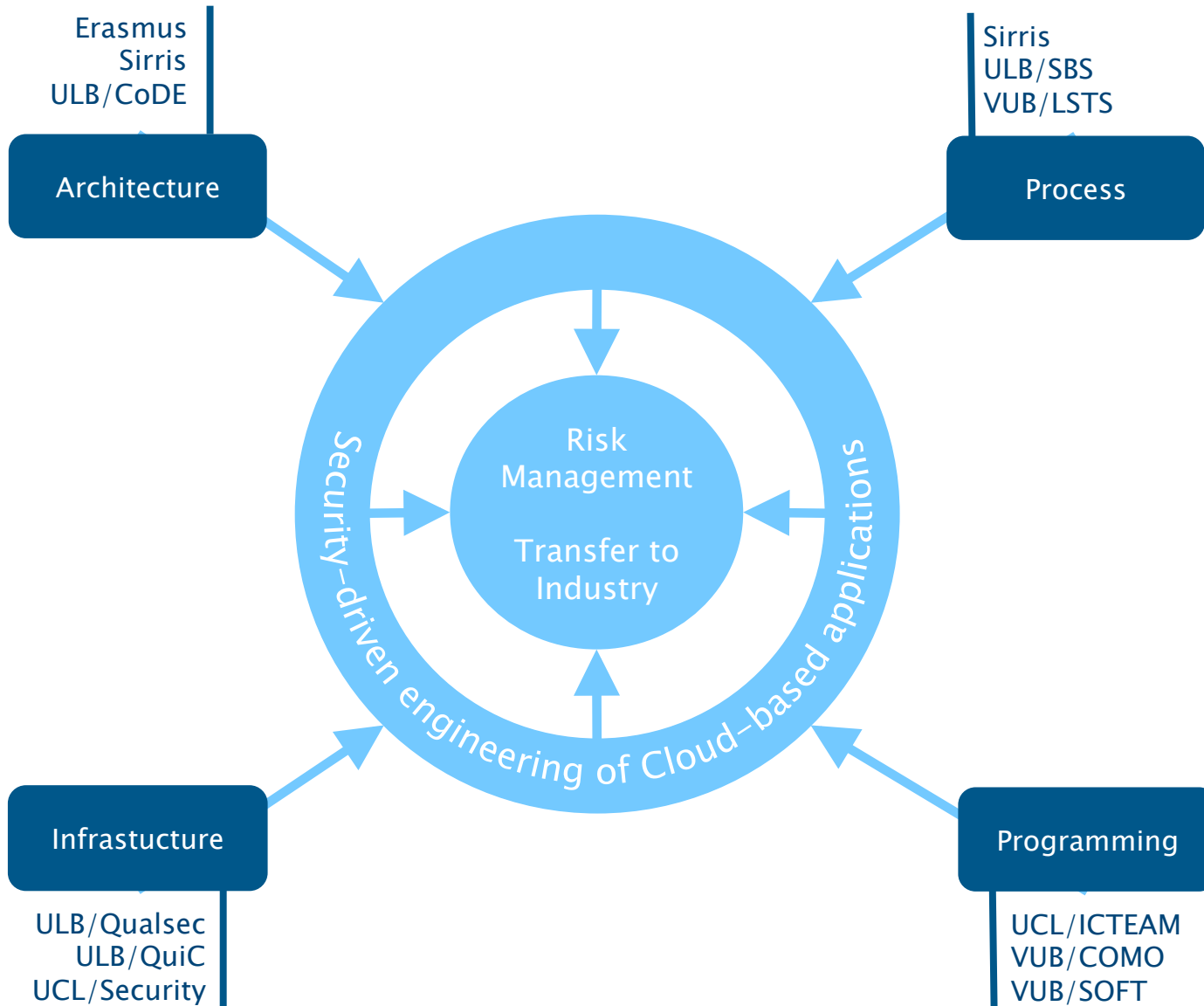
- Approach with 4 research perspectives



Selection of research areas based on

- Industrial relevance
- Scientific contribution and available expertise in the Consortium

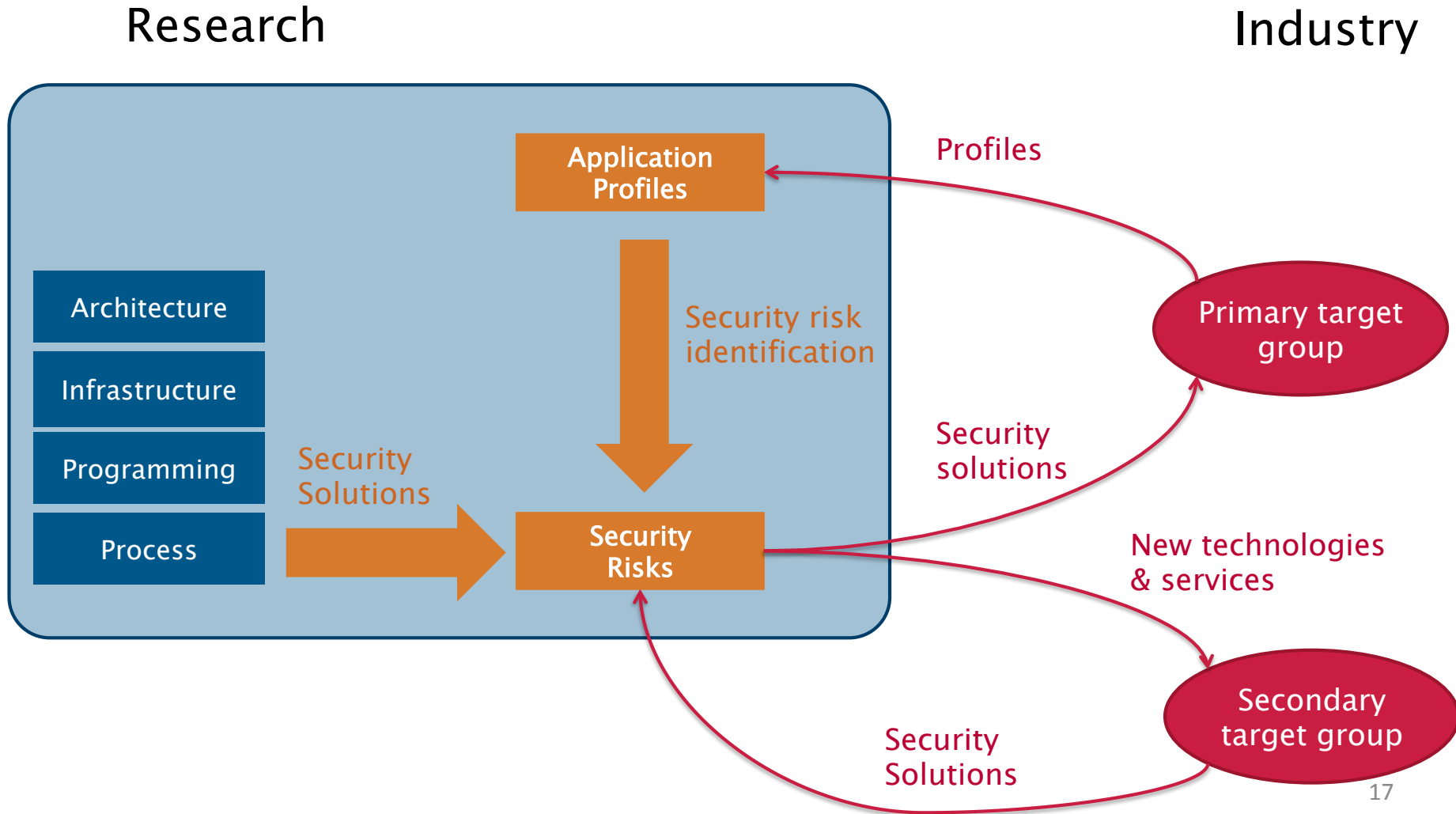
Multidisciplinary consortium



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Transfer to industry



Current sponsors



Interested?

- Getting involved
 - Attending **brokerage events** and workshops
 - Providing your business cases and problems
 - Sharing your own experience/expertise in a particular domain
 - Participating in pilot cases
- Take-away
 - Gathering knowledge and inspiration
 - Getting advice for your own challenges
 - Establishing long-term collaborations
 - Introducing innovations in your products/services

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