

CRYSTAL

Certus Testing Platform

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Certus User Partner Workshop

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Agenda

- Brief history of the Certus' tools production so far
- Genesis of Crystal
- Architecture of Crystal
- Live demo
- What's next

Centre's tools production

- Several tools have been developed.
- Two main categories:
 - Industrial exploitation candidates
 - More research support oriented tools

Centre's tools production

Many differences among
them except one thing...

Projects' Hotel



GENESIS OF CRYSTAL

Genesis of Crystal

- Address the problem of “Projects’ Hotel”
- What prevented sharing and reuse?
 - Architectural issues: desktop, web, etc...
 - Monolithic tools
 - Implementation’s peculiarities: design, language, etc.

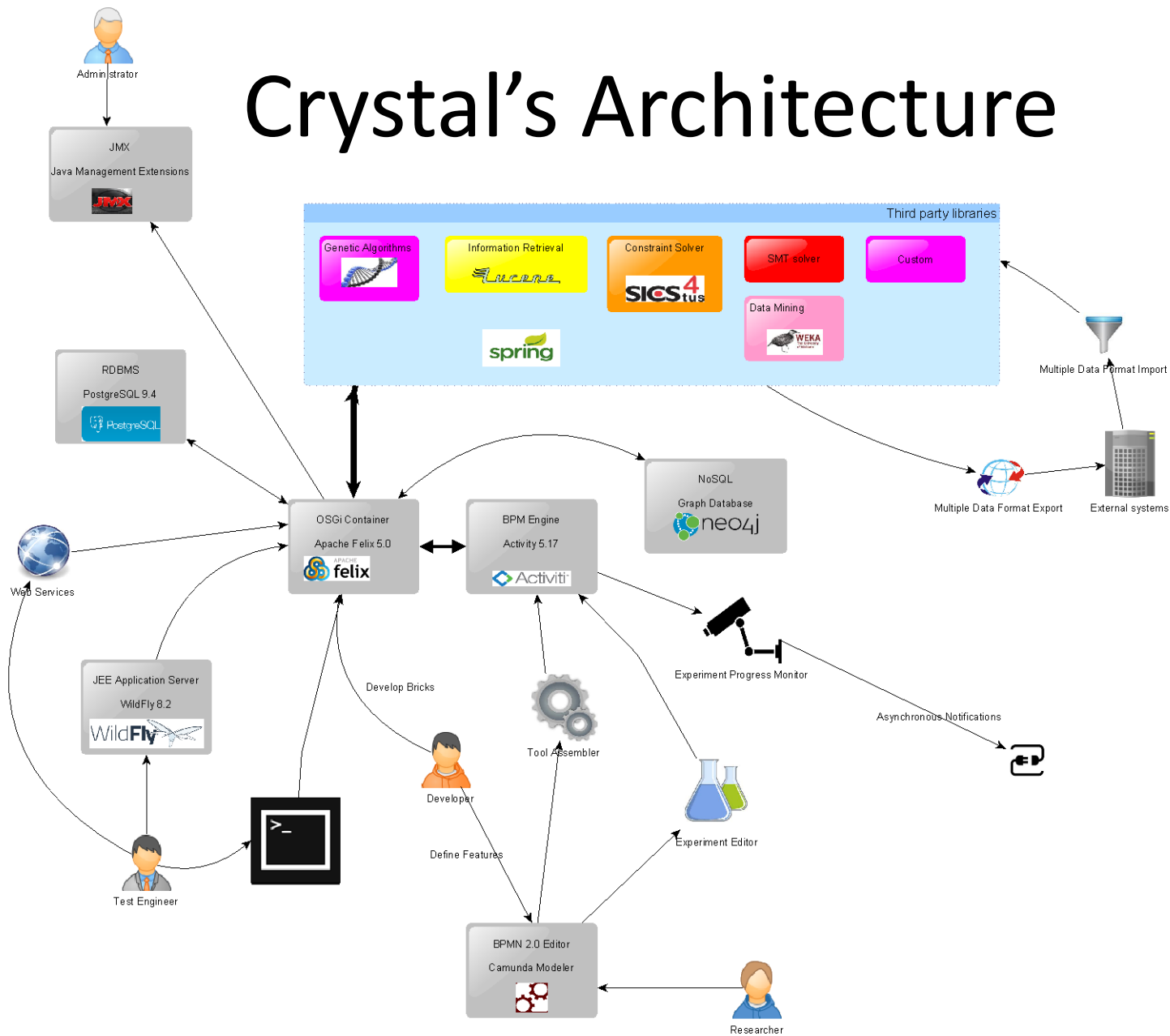
Genesis of Crystal

- Context
 - Last Spring. Mid term evaluation of Certus
 - Certus exit strategy
- Project's design driven by:
 - Past experiences
 - Ecosystem for software testing
 - Common ground for sharing, comparing ideas, etc.

Genesis of Crystal

- What would enhance sharing and reuse?
 - Microservice architectural style
 - Decoupling the platform by any specific need in terms of user interaction
 - Decoupling the platform by any specific persistence technology
 - No hardwired high level functionalities
 - Dynamic, binary service deployment

Crystal's Architecture

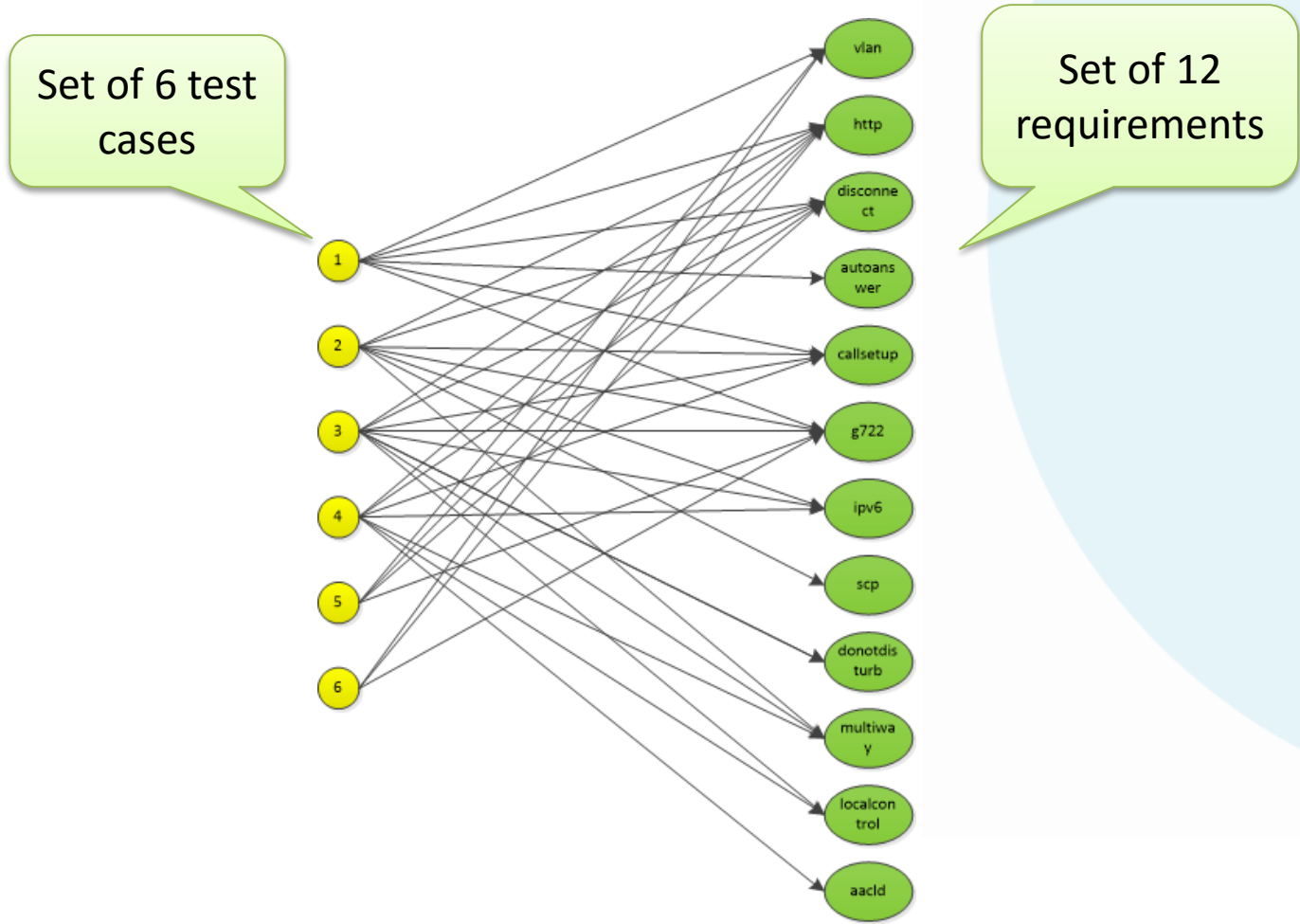


Crystal's glossary

- **Brick**: binary components which are the constituents of the platform
- **Feature**: flow of operations. Each feature may involve human actors, bricks, features themselves, external services etc.

LIVE DEMO

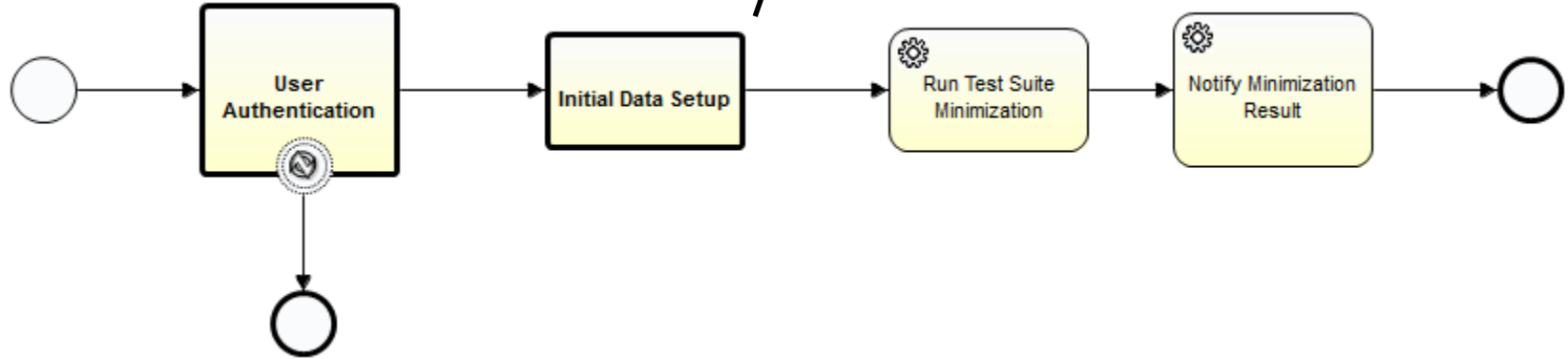
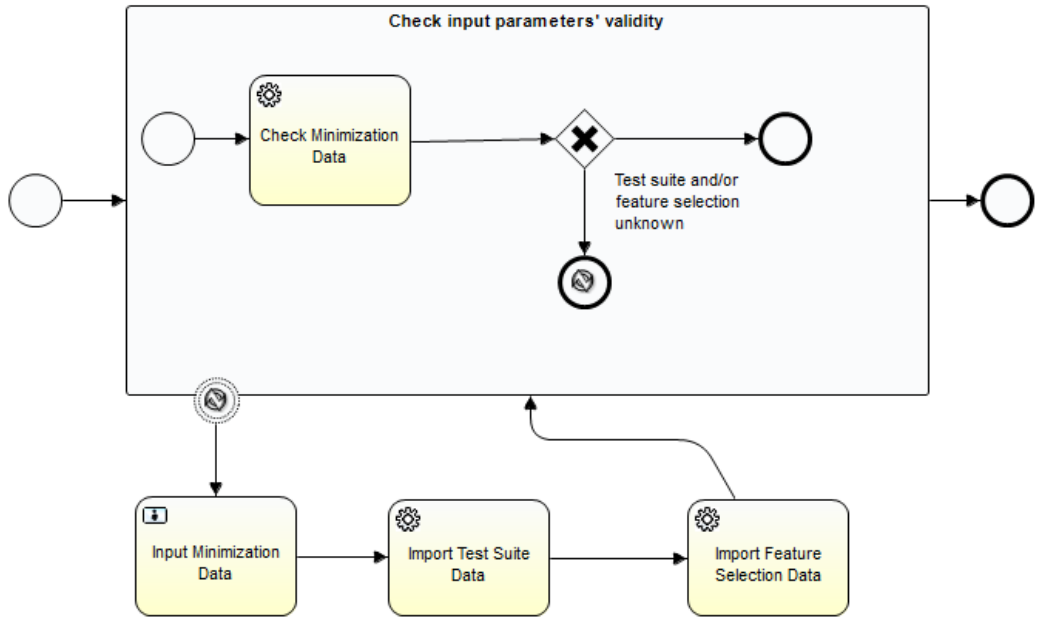
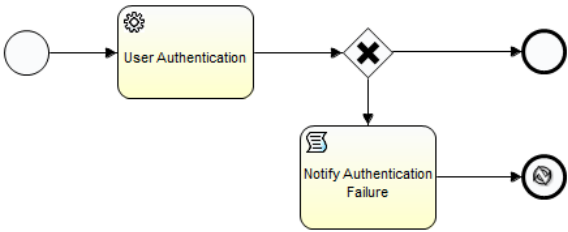
Live demo: “Test suite minimization”



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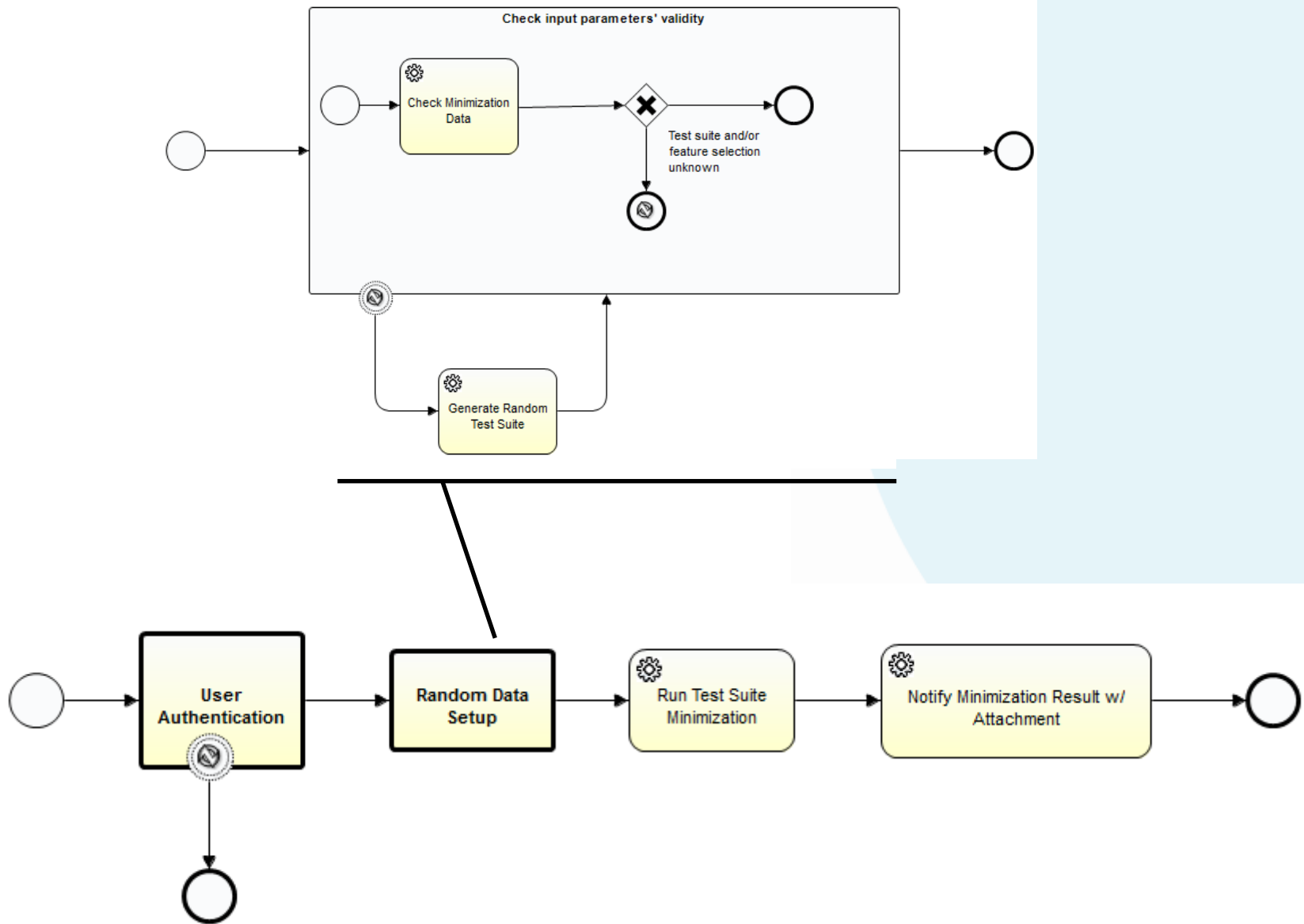
- Characteristics of the feature:
 - RESTful web interface
 - Mixed attended/unattended execution
 - Interaction through the web
- Bricks:
 - Graph representation
 - Minimization algorithm
 - User manager and authentication
 - Etc. (utility bricks)
- How is expressed the logic of the feature “Test Suite Minimization” ?

Live demo: "Test suite minimization"



Live demo: “Test suite minimization 2”

- Characteristics of the feature:
 - Command line interface
 - Random generated test suite
 - Results notified as JSON attachment
- New bricks developed:
 - Random generation of test suite



CONCLUSION

What's next

- Make it grow
 - Populate Crystal with other “bricks” and “features”
- Explore other ideas:
 - Simulation
 - Time machine (only for the past 😊)
- Open challenge: accessibility to available services and data

Conclusion

- Potential that goes beyond the specific implementation
- Some advantages:
 - High level functionalities defined through models (BPMN 2.0)
 - Easier to test, replicate undesired behaviours
 - Microservices Architectural Style promotes the adoption of best practices in software design and development

QJheart konyo @ !