

#### AN IMINDS ICON RESEARCH PROJECT | PROJECT RESULTS





Enabling distributed business process outsourcing (BPO) in an interoperable, scalable and secure way

In an effort to make their operations increasingly efficient, more and more companies are interested in outsourcing (parts of) their supporting business processes to specialized service providers.

A good example includes billing. In the past, every single company took full ownership of the complete billing process – from creating the invoices to checking the actual payment, and resending the invoice in case of overdue bills. Today, though, that same process is increasingly being outsourced to billing service providers who give short, intermediate updates (such as bill sent, bill resent, or bill paid) while taking care of the underlying and longer-term details.

Yet, in practice, this distributed way of working (with various stakeholders being responsible for one or several aspects of the overall process) does not come without its share of challenges; challenges that have successfully been addressed by the D-BASE consortium.

"Business process outsourcing comes with distributed process flows between various stakeholders and plenty of remote interactions," explains D-BASE project lead Koen Handekyn (UP-nxt). "For that to work in a systematic and controlled way, a scalable infrastructure is needed. Secondly, we require an interop standard that allows the business process middleware of those stakeholders to talk to one another. And finally, stringent security policies need to be in place. In the framework of D-BASE, we tackled each of those three challenges."

### THE OUTCOMES

1. A proposed interop standard and framework that supports secure, standardized communication between distributed workflow engines

"While this was not part of the original project proposal, one of the main realizations of the D-BASE project has been the creation of a proposed WF-interop standard," says Bert Lagaisse (iMinds - KU Leuven). "We standardized the REST-interface that enables secure communication between different, distributed workflow engines and we combined this with a number of reference implementations."

"For the time being, this is a proposed standard and framework which has been defined and implemented within the D-BASE consortium and which has been validated by means of the project's various application cases," he adds. "Time will tell whether or not it will be leveraged by the broader workflow engine community."

"Yet, even this de facto standard is a huge leap forward already," agrees Koen Handekyn. "In the past, research in this domain has always hit the wall as it wanted to encompass everything. We, however, walked a more pragmatic way to get to our standard. It might not solve everything, but it is workable: the API keeps a good balance between complexity and flexibility – and it comes with the possibility to hook in extra features going forward. Integrating business processes across companies used to be an ad hoc exercise. But thanks to our generic API, we are now able to serve our customers in a much more structured way!"

# 2. A state-of-the-art cryptographic security approach that uses vouchers

D-BASE also resulted in two security-related solutions. One allows business processes to interact with one another via the OAUTH industry standard. The second one leverages a more forward-looking research approach: it makes use of new cryptographic methodologies and vouchers to enable customers to initiate business processes in a highly secure yet anonymous way, while still granting users the appropriate rights.

### 3. A more scalable workflow engine and storage technology

The scalability issues that today's business process outsourcing platforms are confronted with were tackled in two ways. Whereas a centralized workflow engine typically ran on a single server and made use of an SQL database, the D-BASE approach leverages NoSQL technology (which is more scalable) and completely decentralizes the engine over hundreds of servers in parallel.

## **NEXT STEPS**

UP-nxt is expanding its billing platform for SMEs with additional third-party apps and (financial) services. Leveraging the D-BASE project results and its proposed WF-interop standard, they are now able to build a platform that can accommodate these apps (and the related remote workflows) more flexibly.

Red Hat has already expressed their interest in supporting the WF-interop interface in their engine's open source edition.

Noesis intends to use the WF-interop interface as a facilitator between Red Hat's jBPM workflow engine and Noesis' proprietary engine for scientific simulations.

### FACTS

NAME	D-BASE
OBJECTIVE	Enabling distributed business process outsourcing (BPO) in an interoperable, scalable and secure way
TYPE	ICON project
DURATION	01/01/2014 - 31/12/2015
PROJECT LEAD	Koen Handekyn, UP-nxt
RESEARCH LEAD	Bert Lagaisse, iMinds - Distrinet - KU Leuven
BUDGET	2,074,000 euro
PROJECT PARTNERS	Noesis Solutions, Red Hat, UP-nxt
IMINDS RESEARCH GROUPS	COSIC - KU Leuven Distrinet - KU Leuven IBCN - UGent



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D-BASE project partners:





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