Does Swiss IT Matter?

Perspektiven des Informatikstandorts Schweiz

Eine Fachtagung der Java User Group Schweiz und der Credit Suisse im Rahmen der informatica08

> Montag, 29. September 2008 im Forum St. Peter der Credit Suisse in Zürich

Trägerschaft/Organisation





NETCETELƏ Quality Software Engineering

Agenda

- Das Innovationsprofil einer Grossbank im Bereich Java Technologie am Beispiel der Credit Suisse
- Die Transformation vom Projektdienstleister zum Produktanbieter
 Der Turnaround einer KMU-Unternehmung
- Die Konjunkturentwicklung der IT-Branche
- Gehaltsperspektiven und ihre Entwicklung auf dem IT Arbeitsmarkt Schweiz
- Integriertes Personalmanagement in der IT-Division eines globalen Finanzdienstleisters
- Der IT Arbeitsmarkt Schweiz Koordinationsprobleme Angebot Nachfrage
- Paneldiskussion: Was f
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Speaker Info – Stephan Hug

CTO Private Banking & CTO Switzerland, Credit Suisse

Stephan Hug ist der Chief Technology Officer (CTO) Private Banking und CTO Switzerland der Credit Suisse.



Stephan Hug trat 1995 in die Credit Suisse ein. In den 13 Jahren bei der Credit Suisse übte er zahlreiche Funktionen aus. Unter anderem war er Entwickler, Projektleiter und Architekt im Foreign Exchange und "Money Market IT"-Bereich der ehemaligen Credit Suisse First Boston in Zürich, New York und London.

Nach dem Wechsel in die Private Banking IT, wo er als Ressortleiter, Programmleiter OTEx (einem Grossprojekt im Bereich Client Trading) und zuletzt als IT-Architekt des Departments "Trading & Operations IT" tätig war, übernahm er 2007 die Verantwortung für die Applikations-Architektur der Private Banking IT.

Bevor Stephan Hug zur Credit Suisse stiess, war er im Bereich Research & Development eines Industriebetriebs tätig, und half einer Schweizer Grossbank den Trading Floor zu gestalten. Er besitzt einen Masters Degree in Computer Science der ETH Zürich sowie ein Nachdiplomstudium in Finance der Universität St. Gallen.



Das Innovationsprofil einer Grossbank im Bereich JAVA Technologie am Beispiel der Credit Suisse

Stephan Hug CTO Private Banking / Switzerland

September 2008

Agenda





DirectNet & FrontNet: Just the well-known beginning (and an easy one)

DirectNet

- 549'000 online customers (December 2007)
- 606'000 online customers (August 2008)
- Avg. 2.6 million logins per month

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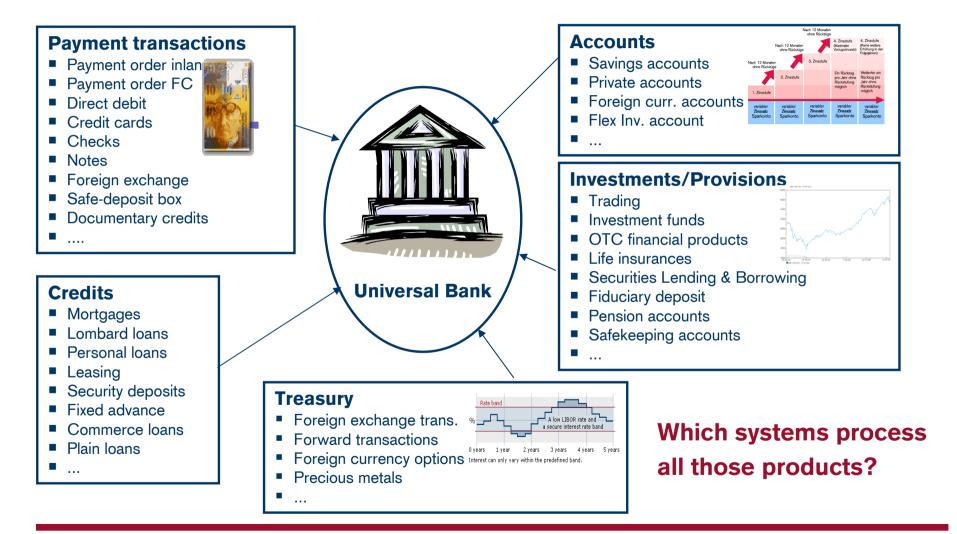
Description

- Intranet portal for relationship managers
- Combines existing functionality with a modern integrated user interface
- Results in improved and more flexible workplaces for relationship managers

Java has been very successful so far at CS, but most of the applications are no more than nice user interfaces to the mainframe!



Facts & Figures: Product Portfolio





Facts & Figures: Myth & truth

Credit Suisse



Headquarter: Year of Foundation: **Business Areas:**

Locations in: Net Income 2007: **Return on Equity 2007: Employees*:**

Zurich 1856 Private Banking, Investment Banking and Asset Management Switzerland, Americas, EMEA, APAC 7 760 CHF million 18.0 % ~49'000

Credit Suisse IT Switzerland



Number of servers: 6,750 Servers (Windows, UNIX, z/OS) Number of Applications: ~ 800 applications Lines of Code in PL/1: ~32 Mio. lines of code Lines of Code in Java: ~11 Mio. lines of code **Payment transactions:** ~ 250 Mio. / year Straight through processing rate: > 92 %**Printed pages:** ~ 224 Mio. / year **Email:** ~ 339 Mio. / year **Employees:** ~4'000 **Employees hired p.a.:** ~400-500

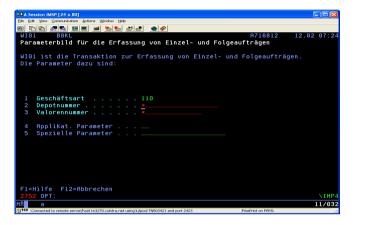


Mainly this (very large) system!



The Challenge

The majority of the business critical logic is in PL/1 on the mainframe



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Challenge: How do you get from black screens (and a lot of business logic behind it!) to modern GUI's with business logic in Java (rather than calling hundreds of CORBA services on the mainframe)

Why do we need to do this?

- •Lifecycle issues with applications, some are 30+ years old
- •Difficulties to deal with some of the modern products (e.g. structured products)
- •Difficulties to cope with increasing demand for flexibility
- •Difficulties to find PL/1 skills in the marketplace



TIOBE Index

TIOBE Programming Community Index December 2007

www.tiobe.com/tpci.htm

Pos	ition	Trend	Programming Language	Ratings		Delta
Dec 06	Dec 07			Dec 06	Dec 07	
1	1	=	Java	19.91%	20.05%	0.14%
2	2	=	С	16.61%	13.17%	-3.44%
4	3	1	(Visual) Basic	8.91%	10.22%	1.31%
5	4	1	PHP	8.53%	8.39%	-0.14%
3	5	#	C++	10.41%	7.87%	-2.54%
7	6	1	Python	3.77%	4.70%	0.93%
6	7	+	Perl	6.39%	4.38%	-2.01%
8	8	=	C#	3.17%	3.99%	0.82%
11	9	tt	Ruby	2.33%	3.09%	0.76%
10	10		JavaScript	2.56%	2.73%	0.17%
18	15	ttt	COBOL	0.60%	0.89%	0.29%
>50	>50	=	PL/1	<0.10%	<0.10%	0.00%

- Gives an indication of the popularity of programming languages
- The attractiveness is reflected in available resources, tools and methods
- PL/1 seems not to be a long-term option

Ratings are based on world-wide availability of: skilled engineers; courses; third party vendors Ratings are calculated by counting hits of the most popular search engines, such as Google, MSN, Yahoo! TIOBE considers programming languages with a rating > 0.7% for more than three consecutive months as mainstream languages



How we address the challenge

Improve our existing Java Application Platform (JAP) to become a true alternative to the mainframe

- Elements required:
 - Distributed: Includes host and non-host applications (that interact during batch and online)
 - Logically layered: apply clear SOA layer architecture including tracability to business components and business processes
 - State-of-the art software engineering: Will use MDA, rule engines, process orchestration engines
 - Failure resistant: Will consist of multiple runtime systems which are failure-independent (replication of shared information)
 - Scalability: Since volumes are growing constantly, scalability has to be a key element of the future platform

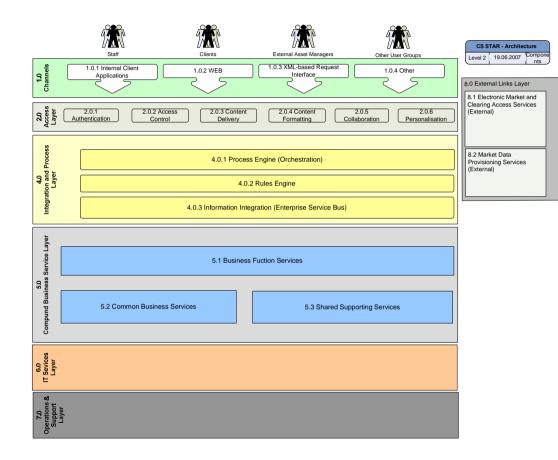


Assets we already have

- We do not have to start from scratch, we can look back on more than 10 years of experience with SOA and have multiple assets already
 - Integration-Architecture/Middleware (Credit Suisse Information Bus, Event Bus Infrastructure)
 - CORBA and Websphere MQ is in use already and can help with the co-existence
 - Application Platforms (Java Application Platform)
 - Good experience with JAP
 - Can and will position JAP as platform of the future
 - Governance & Processes (Quality Check Process, Project Rewview Borad Process, IT-Projekt Vorgehen)
 - Leverage existing governance and processes
 - Leverage CMMI
 - People (not many, distributed across the organization)
 - Bring the right people together



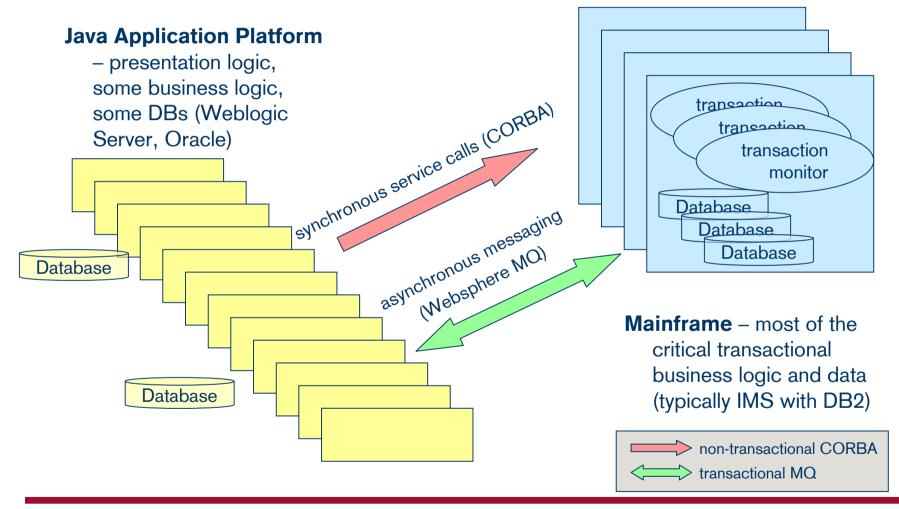
SOA Layer Architecture



- Classic layer architecture
- Includes more sophisticated layers such as Process Engine anfd Rules Engine
- Transaction Processing is the key to success when trying to position this architecture as the Javabased alternative to the mainframe
- Database is measured with DB/2 on the mainframe

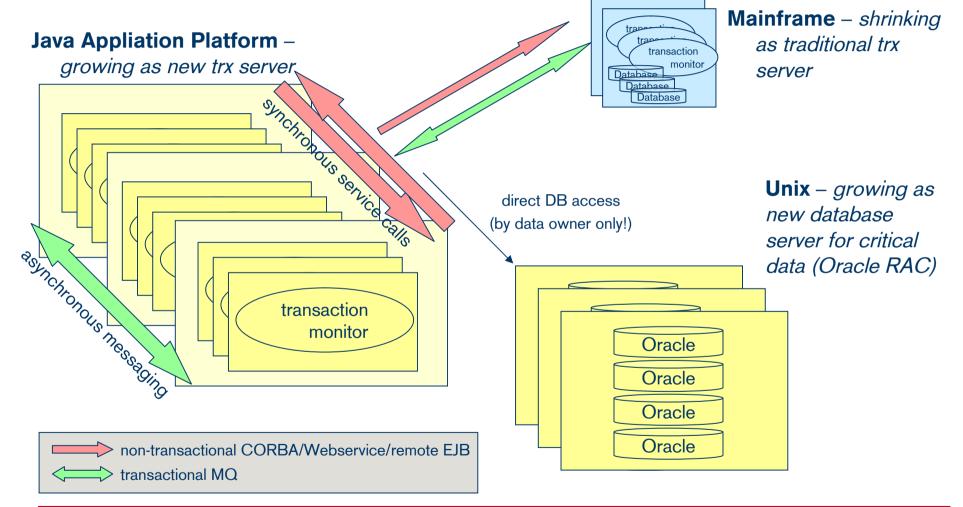


Database: Current Architecture with critical business data mainly in DB/2 and IMS on the mainframe





Database: New Architecture with business critical data in Oracle RAC on UNIX



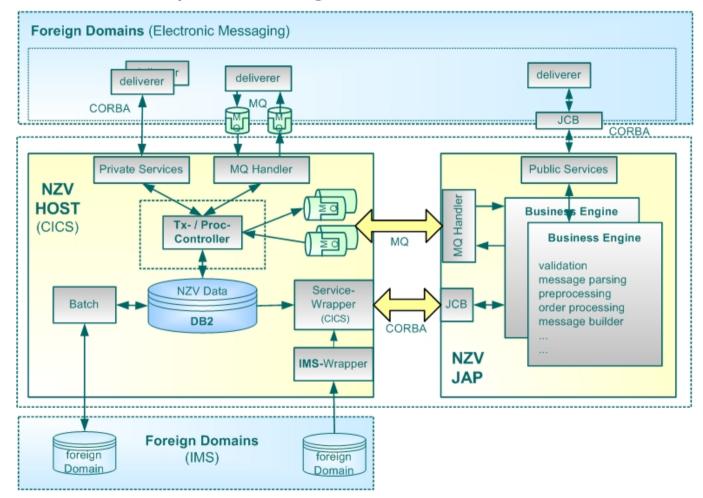


Transaction Processing

- We will use built in BEA WebLogic Transaction Monitor (based on BEA Tuxedo technology)
- Has been proven in a prototype in payments area (see next two slides)
- Many questions remain open, but those questions are more application than technology related:
 - What is the LUW (Logical Unit of Work) concept on the new platform.
 Concepts used on the mainframe no longer work in a distributed environment
 - How can we avoid sychronicity and use asynchronous communication instead?

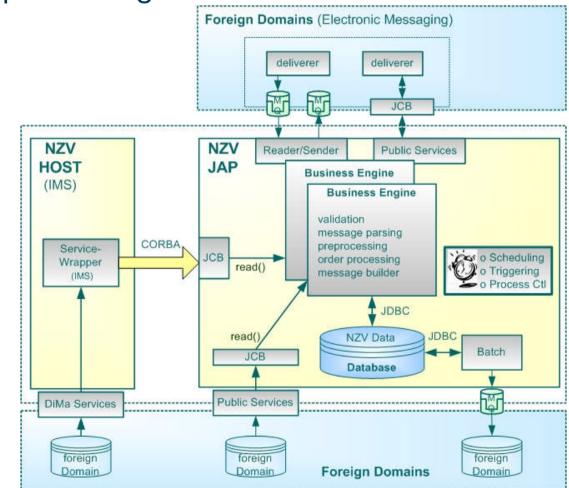


Payments Platform Consolidation – Status Quo with main transaction processing on mainframe





NZV Platform Consolidation – Target Architecture with main transaction processing on JAP





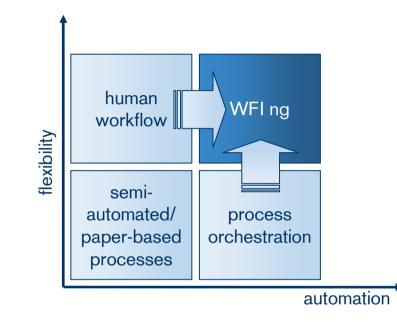
Flexibility and Reuse WFI (Workflow Infrastructure) Next Generation

Challenges

- Better integration into JAP applications and portals (e.g., common worklist component)
- Need for high-throughput process orchestration in addition to human workflow
- Improved functionality for workflow modeling, monitoring, and analysis; support for standards (BPEL)
- Current workflow engine behind the Workflow Infrastructure (Websphere MQ Workflow) reaches end of life-cycle

Solution

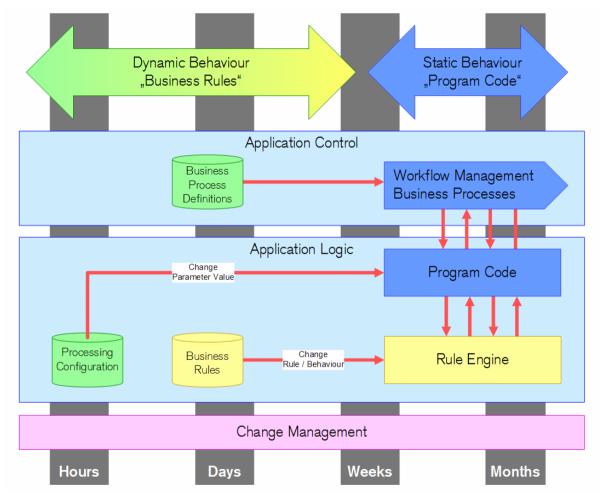
- State-of-the art BPM tool as a fundamental building block for
 - the future backend platform for our core applications
 - front components
- Process automation environment tightly integrated with JAP



- Improved support for business process automation and increased flexibility for the business
- \Rightarrow Processes are no longer hardcoded



Business Rules vs. Code

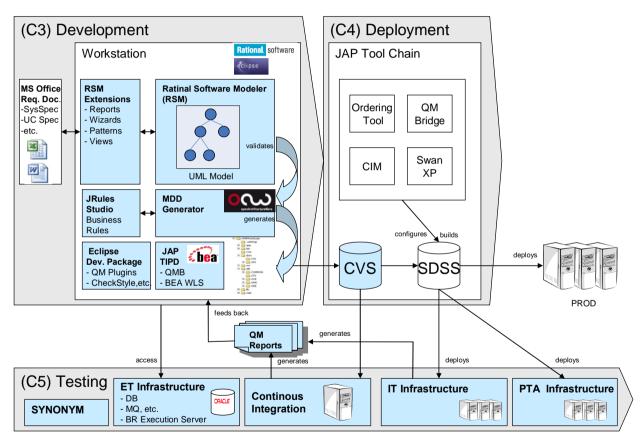


- Business Rule Engine is part of the new platform
- Business Rule Engine can increase flexibility but is not the answer to all problems
- Move business rules, where applicable into specialized engine with eco system
- Longterm: Make business responsible for maintenance of business rules
- Shortterm: Rules are maintained by IT



Development Toolchain: Enhance efficiency

Development Tool Chain: Overview



Vision

- Be 5 times more efficient in development using model driven approaches
- This resolves potential resource problems and moves the effort (even more) from development into analysis and desgin



Challenges ahead (only some examples)

Defining and implementing the future platform requires to tackle a large number of challenges, for instance

Application Architecture

- Principles for application design with reduced LUW (Logical Unit of Work) scopes
- Re-thinking of Batch net design in a distributed environment
- Additional required checks and balances because of distribution

Platform architecture

- Provide all the necessary building blocks for transaction processing on JAP
- TX manager, batch management, HA databases etc

Integration architecture

- Provide the concepts and means for reliable transaction processing in a distributed fashion
- Rules for component design, service design, transaction control etc
- Exception handling

Security architecture

- Éfficient authorization and authentication in a component based world
- Re-eavalute the current security mechanisms for the new environment

Systems management architecture

- Failure detection and analysis in a distributed component environment
- Do we need more Business activity monitoring?

Co-Existence

 Since the old and the new platform will co-exist for many years, a concept on how to do this is key



Questions?



