



paranor

Software-Renovation with Xtext

Eclipse Finance Day – Oct 2014

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The Story

PostFinance 

- 1993 - In the beginning .
- 1996 - It's alive .
- 2011 – Legacy system ?

Legacy ?

- *Uses outdated or poorly supported technologies*
 - *Developed with outdated or poorly supported technologies*
 - *Poorly understood*
 - *Do not align with the business strategy*
 - *But ... are still providing business value*
-
- *“Over time any successful system will become a legacy system” - if it is not modernized*



Challenges

First some numbers.

- 4.5 million accounts
- 1000 transactions per second
- 900 million transactions a year
- Over 2 millions lines of code.
- **Not small**



Challenges

1. Knowledge 'bleed'
 - Better documentation.
2. Handover
 - Better documentation !
3. Reduced developer capacity
 - More automation
 - More generated code
 - Better IDE support.



Challenges

That is ... the same as for every project !

... but more acute.

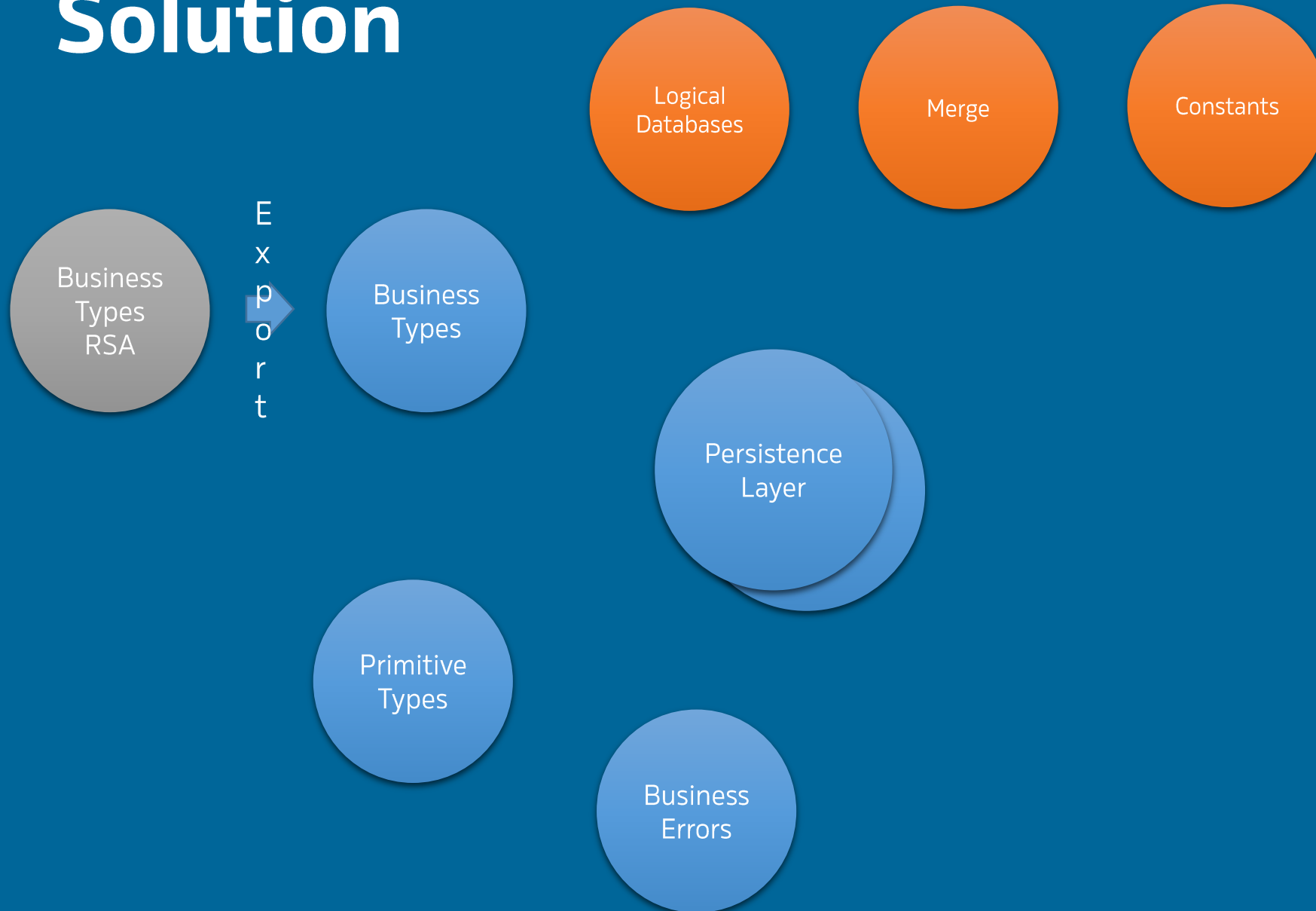
Solution

Modernize the Development Tool chain.

Solution



Solution



Solution

```
global_exceptions.exe - /kobework/epl/
File Edit Search Preferences Shell Macro Windows Help
global_exceptions.
!Database general
!-----
DB_NO_DUP
D: <Datensatz existiert bereits>
E: <Record exists already>
F: <Enregistrement existe déjà.>
I: <Registrazione già esistente.>
DB_INTEG_FAIL
D: <Konsistenzregel in der Datenbank verletzt>
E: <Database consistency rule broken>
F: <Règle de consistance violée dans la base de données.>
I: <Regola di consistenza violata nella banca dei dati.>
DB_NOT_VALID
D: <Ungültiger Inhalt in einem Feld>
E: <Invalid database contents>
F: <Contenu d'un champ non valable>
I: <Contenuto non valevole in un campo>
DB_NOT_FOUND
D: <Datensatz existiert nicht>
E: <Record not found>
F: <Enregistrement non existant>
I: <Registrazione non esiste>
DB_LOCK_CONFLICT
D: <Zugriff auf Daten momentan nicht möglich. Bitte warten und später wiederho
E: <Data not currently accessible. Please wait and try again.>
F: <Pas d'accès aux données. Veuillez patienter/essayer plus tard>
I: <Accesso ai dati non possibile. Vogliate pazientare/provare più tardi>
DB_MORE_THAN_1
D: <Mehrere zutreffende Datensätze vorhanden>
E: <More than one record present>
F: <Plusieurs enregistrements correspondants présents>
I: <Più registrazioni corrispondenti presenti>
```



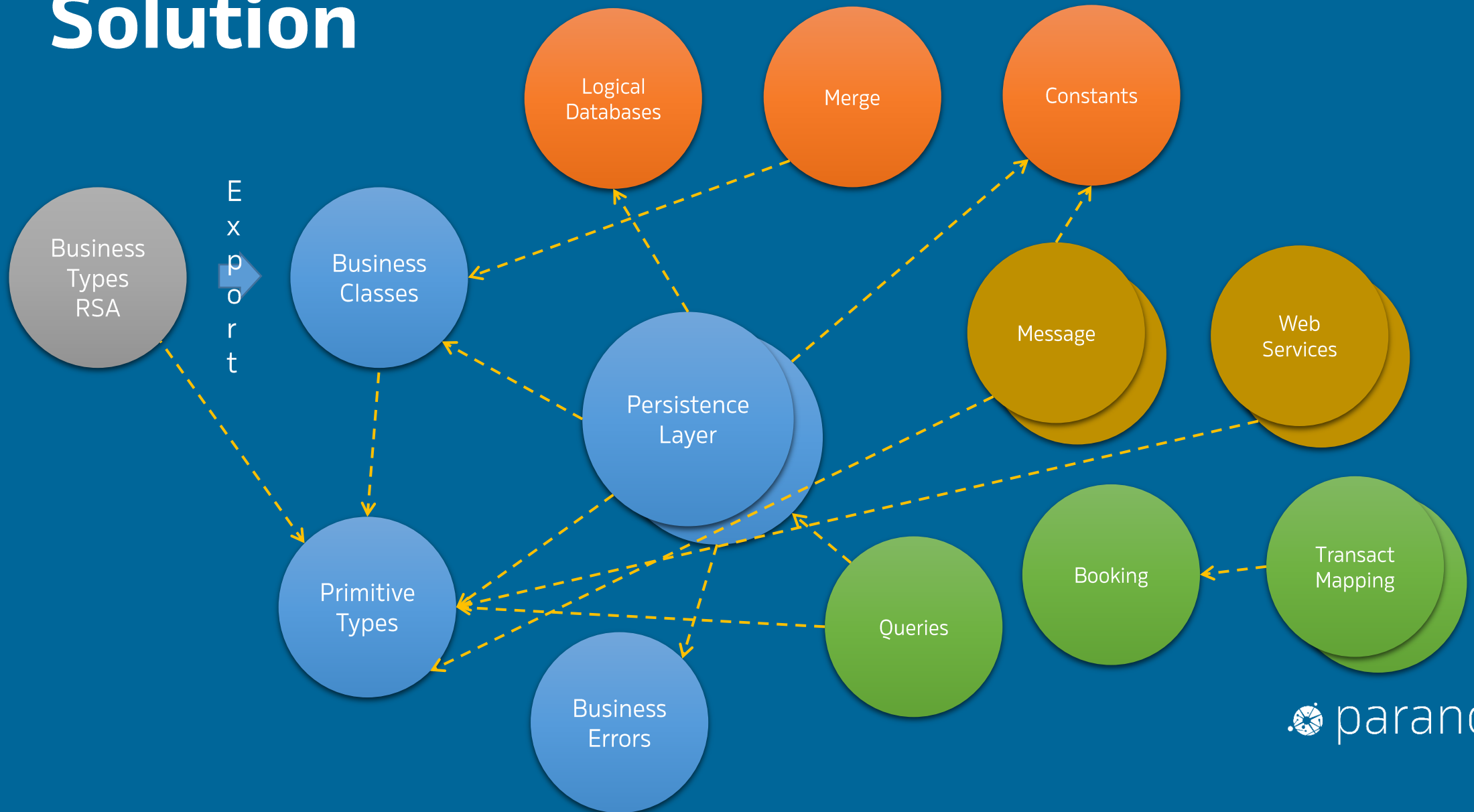
```
global_exceptions.exe
Global_Exceptions Exceptions facility 1
!Database general
!-----
DB_NO_DUP
D: <Datensatz existiert bereits>
E: <Record exists already>
F: <Enregistrement existe déjà.>
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```

Syntax Highlighting

Linking

Validation

Solution



How did it go?

- We did it .
- No 'show stoppers'
- It's hard to stop.

How did it go?

Proprietary Tools

The screenshot displays a complex interface with multiple overlapping windows. At the top, a 'File Browser: CDE' window shows a directory structure. Below it, a 'Terminal' window shows a series of shell commands and their outputs. A 'Text Editors' window is open, displaying a file named 'ldb_ausw_statistik.txt' with the following content:

```
File Edit Search Preferences Shell Macro Windows Help
ldb_ausw_statistik
-----
-- LDB_AUSW_STATISTIK.TXT
-- This file defines the key aspects of the database STA
-- Änderungen:
-----
define logical database AUSW_STATISTIK;
server: AUSW_KOBE;
physical database: STATISTIK;
```

Binaries / Scripts

Eclipse IDE

The screenshot shows the Eclipse IDE interface. The 'Package Explorer' on the left lists various packages and classes. The main 'Code Editor' displays the following code snippet:

```
global_exceptions.es
KOBE_Stdfmt.segment
RE15A, RE15B, RE15C
}
highlighted release RE14C ;
local types {
  KOBE_SST_STD_Format_Types
    type INTEGER_6 Numeric [4]
    type INTEGER_8 Numeric [4]
    type VSTRING_135 Vstring(135)
    type AUFTRAGSAVISWAHL_RED Enum[1]
    type AVISIERUNGSTEXT nullable String (1)
    type AVISIERUNGSTEXT_6 nullable String (1)
    type AVISSEITENTYP Enum[1]
    type BELEGAUSSCHNEIDEN Enum[1]
    type BNK_CLEARNR_CD nullable Numeric [4]
    type BNK_CLEARNR_PLN nullable Numeric [4]
    type BNK_CLEARNR_WRG nullable Numeric [4]
    type KONTONR_BH nullable Numeric [4]
    type KZA_PROCESSING Enum[1]
    type LAND_STRING String (1)
    type MERKMAL Enum[1]
    type MTLG_6 nullable String (1)
    type ORIK_REKO_IND Numeric [1]
    type SAPBELEGART nullable String (1)
    type SAPGESCHAFTSFALL nullable String (1)
}
```

How did it go?

- Some more numbers
 - 20 meta models / DSL
 - Circa 300 models
 - Circa 1 000 000 lines of code generated, 50% of the codebase.
 - Code generated increased 25 – 30 % (estimated)

How did it go?

- Did we achieve our goals ?
 1. Better system documentation .
 - Models are self documenting.
 - Still missing business information.
 2. Development is more efficient.
 - We think !

Conclusion

- Using Eclipse/Xtext is good .
- Using models is good .

Questions ?

Thank you!

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