



**INTESA SANPAOLO
CARD**



UPRAVLJANJE ORACLE JOBVIMA POMOĆU ENTERPRISE JOB SCHEDULERA

**Rajko Kuzma
Intesa Sanpaolo Card d.o.o.**

Intesa Sanpaolo Card



Croatia
PRIVREDNA BANKA ZAGREB

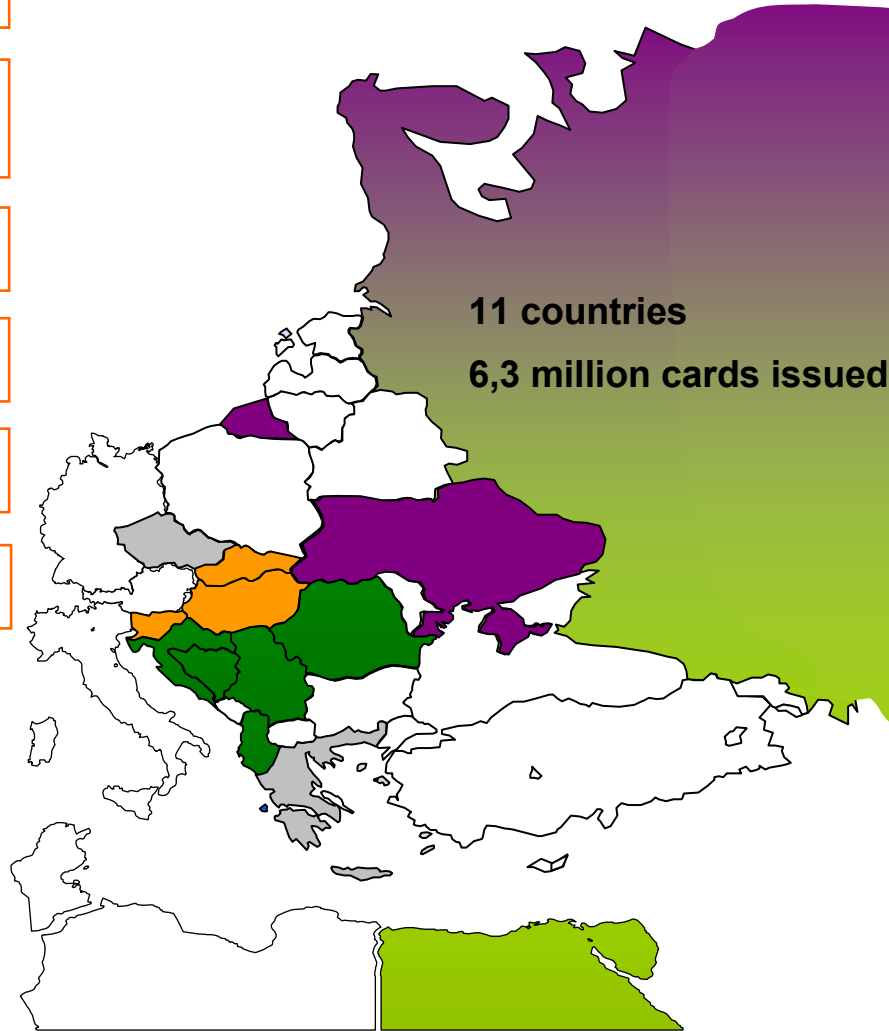
Bosnia Herzegovina
INTESA SANPAOLO BANKA
Bosna i Hercegovina

Serbia
BANCA INTESA
Beograd

Slovenia
BANKA KOPER

Slovakia
VÚB BANKA

Hungary
CIB BANK



Romania
INTESA SANPAOLO BANK
Romania

Albania
INTESA SANPAOLO BANK
Albania

Egypt
BANK OF ALEXANDRIA | بنك الاسكندرية

Russian Federation
KMB BANK

Ukraine
ПРАВЕКС-БАНК



Zašto upravljati jobovima?

- velika količina obrada
- asinkroni procesi

Kako upravljati?

- batch jobovi + programska logika
- ručna kontrola

Enterprise Job Scheduler

- sinkronizacija pojedinih segmenata poslovnih procesa
- automatizacija obrade podataka – ulazna/izlazna ovisnost
- virtualizacija poslovnog procesa
- nadziranje (monitoring) obrada

Kartično poslovanje

Razni produkti

- American Express
- Master Card
- VISA
- Maestro

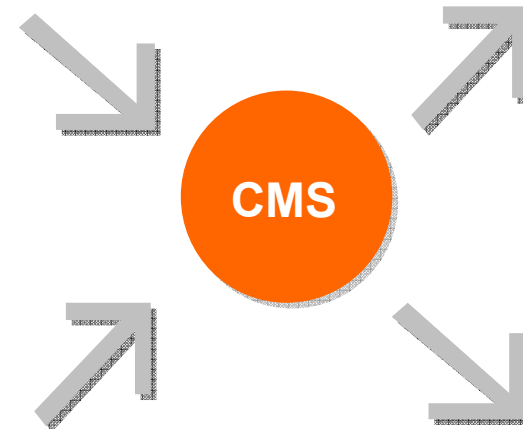


Core - Card Management System

- Oracle baza
- PL/SQL logika
- batch obrade podataka

Financijsko knjiženje Podatkovni kanali

- potraživanje od strane prodajnog mjesta
- naplata članu



Definicija obrade



U/I kanal

- vanjski izvori
- ekstrakti, POS, ATM

Load podataka u bazu

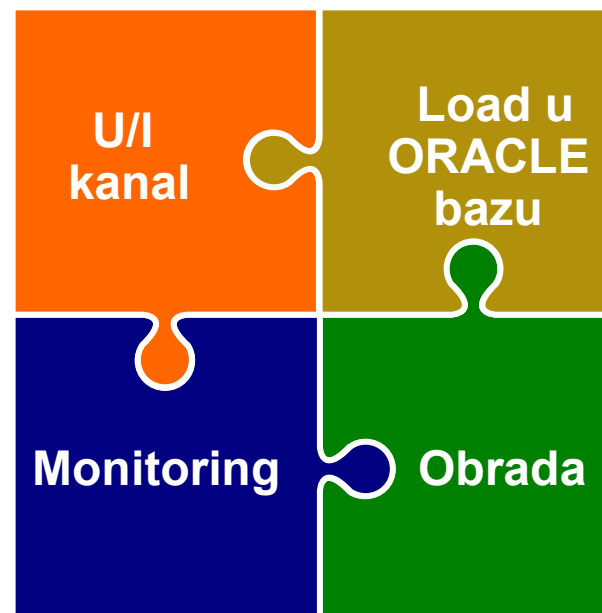
- data import PL/SQL
- SQL loader

Obrada

- poslovni proces obrade podataka
- PL/SQL procedure

Monitoring

- Nadziranje obrada
- Kontrola ulaznih datoteka



Manualno procesiranje



Obrada podataka

→ Oracle baza podataka

Front end

→ Oracle Forms

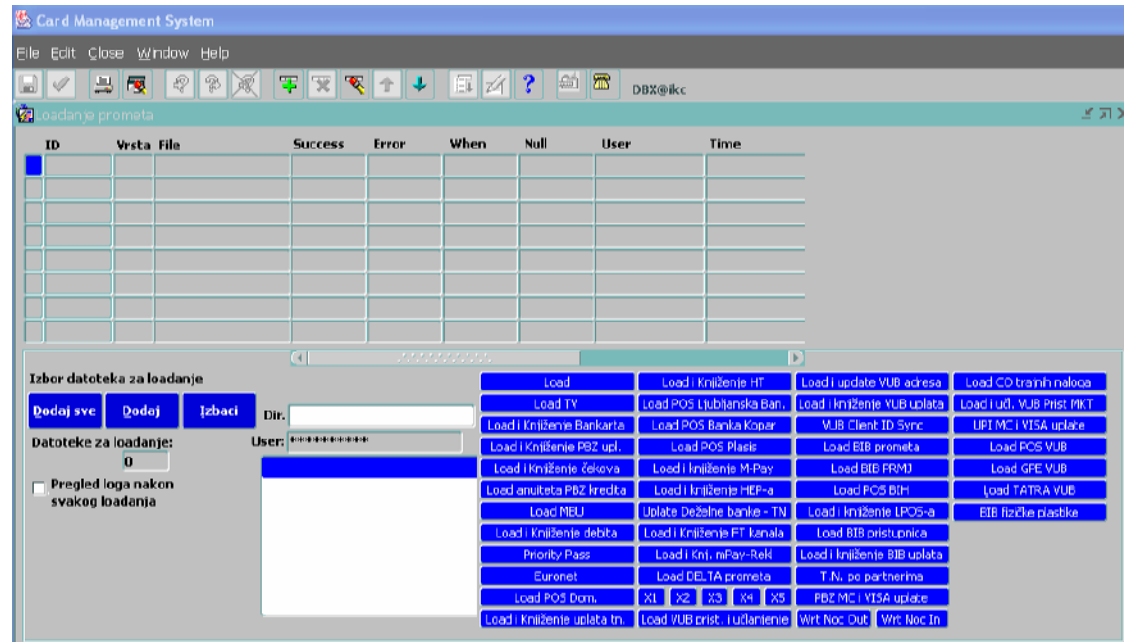
Back end

→ Oracle Forms

→ sqlplus

→ file transfer

→ arhiviranje



Enterprise Job Scheduler



Pametni pokretač poslova (job scheduler)

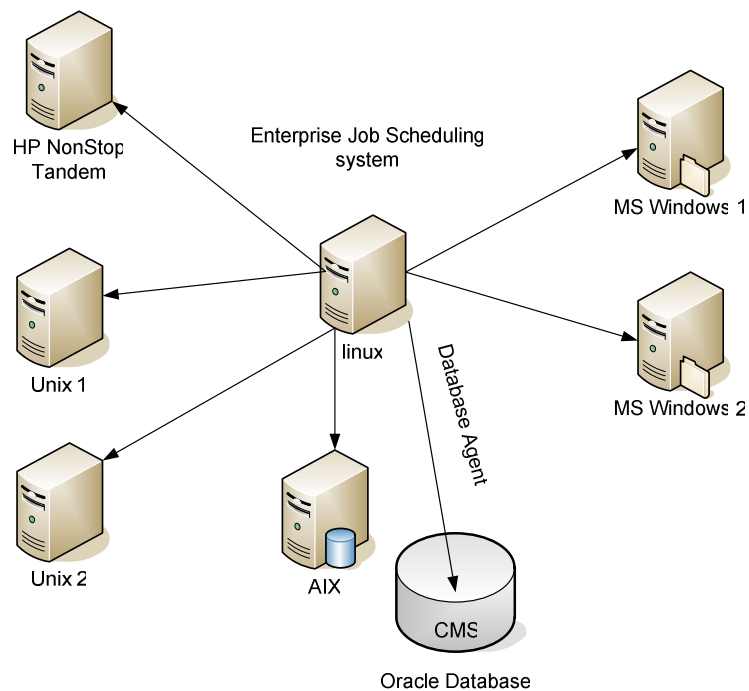
- automatizirani procesi
- kalendarska ovisnost

Platforme

- Oracle baza
- AIX (database server)
- linux
- windows
- tandem (HP non stop)

Vrste jobova

- pl/sql
- OS batch script
- file transfer
- script



Modeliranje procesa



Process Flow (job plan)

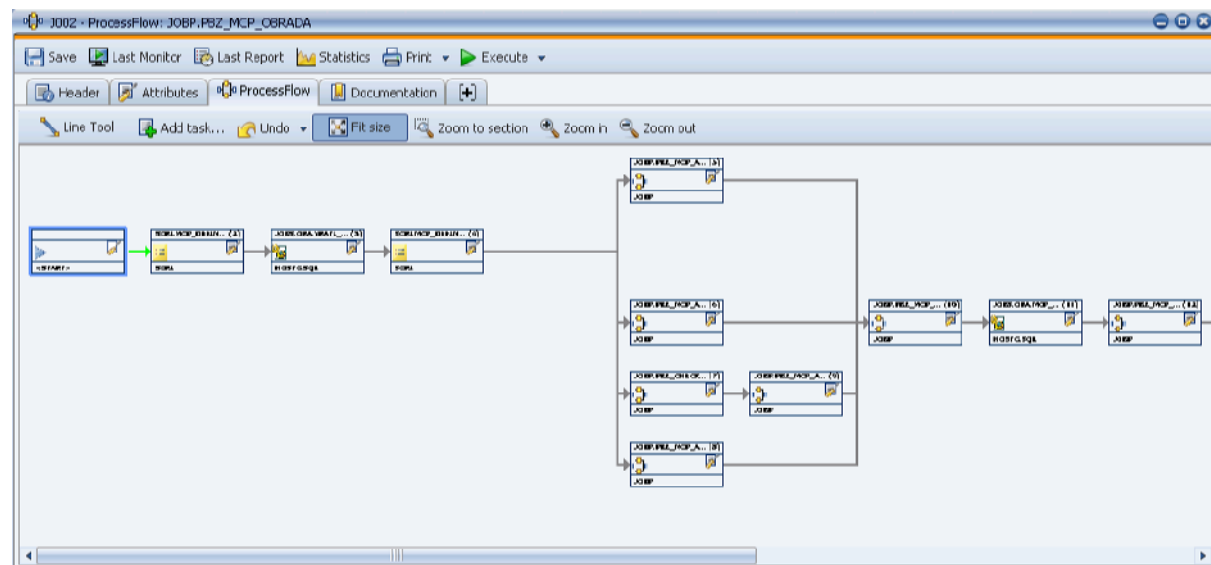
- nosi informaciju o logičkoj povezanosti jobova
- opisuje poslovni proces obrade

Razvojne okoline

- razvoj
- test
- produkcija

Proces integracije

- razvoj → test
- test → produkcija



Pozivanje Oracle procedura



Preuvjeti

- database user + prava
- pristupni parametri (sid, host name, port)

Connection	
Server:	srvkkc:1538
Database:	kkc

Tri koraka

- Pre-Process
- Process ili pozivanje Oracle procedure (Form)
- Post Process

```
DECLARE TOUT  
  
declare  
  txtout varchar2(200) := '&VAR1#.';  
begin  
  dbms_output.put_line('In= ' || txtout);  
  select to_char(sysdate, 'HH24:MI:SS') into txtout from dual;  
  dbms_output.put_line('Now is ' || txtout);  
end;
```

Pre-Process i Post Process



Pre-Process

→ priprema ulaznih parametara

```
01 :SET &VAR1#="Input parameter."
02
03 :RSET &E_MAIL_TO#="rajko.kuzma@intesanpaolocard.com"
04 :RSET &E_MAIL_CC#="rajko.kuzma@intesanpaolocard.com"
```

Post Process

→ preuzimanje izlaznih parametara

→ samo kontrola

```
01
02 :RSET &E_MAIL_TO#
03 :RSET &E_MAIL_CC#
```

Primjer parsiranja reporta



Izlaz Oracle procedure

- standardni izlaz
- report

Primjer programskog kôda

- dohvat izlaza Oracle procedure



Package

```
:RSET &E_MAIL_TO#
:RSET &E_MAIL_CC#
:SET &return_code=GET_UC_OBJECT_STATUS(,, "RETCODE")
:print "return_code=&return_code"
:SET &MY_NAME# = SYS_ACT_ME_NAME()
:SET &RUN# = GET_UC_OBJECT_NR(MM.END.PROCESSING)
!:SET &PARENT_NAME# = GET_PARENT_NAME(&RUN#)
:set &NL#=UC_CRLF()
:SET &RET1#=""
:IF &return_code > 0
```

Scheduling mehanizam



Scheduling objekt

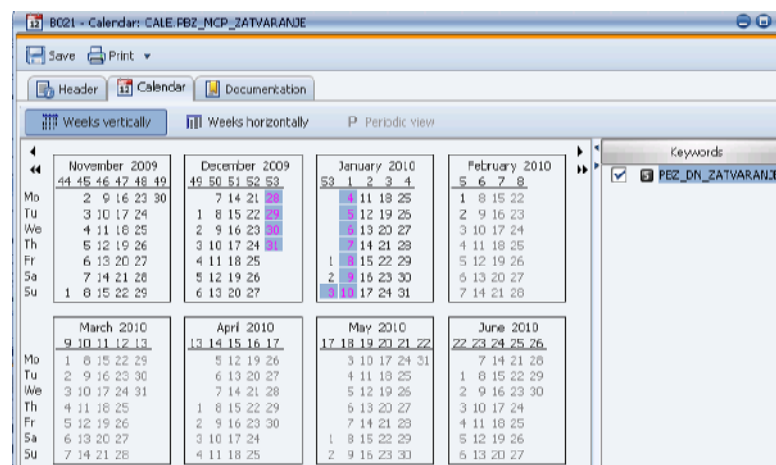
- periodički
- određene dane u tjednu/mjeseću
- ovisno o definiranom kalendaru

Kalendar

- svako tržište ima svoj
- međusobno različiti

Ključne riječi

- ručni odabir
- automatsko računanje



Nadgledanje procesa izvođenja - monitoring



Sustav EJS

- Oracle baza - repozitorij
- sve akcije spremljene automatski su spremljene

Primjer izvještaja – activation report

- logiranje svake napravljene operacije (akcije)

```
B007 - Report: JOBS.ORA.PING (2406275)
Activation Post processing Report Agent log
Print Print Preview Copy Search... Refresh
2010-07-25 10:18:01 - U0005014 AgentGroup 'HOSTG.SQL', client '400', version '1' has been resolved.
2010-07-25 10:18:01 - U0020206 Variable 'E_MAIL_TO#' was stored with value 'rajko.kuzma@intesasnpaolocard.com'.
2010-07-25 10:18:01 - U0020206 Variable 'E_MAIL_CC#' was stored with value 'rajko.kuzma@intesasnpaolocard.com'.
2010-07-25 10:18:02 - U0020206 Variable 'E_MAIL_TO#' was stored with value 'rajko.kuzma@intesasnpaolocard.com'.
2010-07-25 10:18:02 - U0020206 Variable 'E_MAIL_CC#' was stored with value 'rajko.kuzma@intesasnpaolocard.com'.
2010-07-25 10:18:02 - U0020237 Value of validity keyword: '€MAIL_MESSAGE#' in object: 'JOBS.ORA.PING(2)', line: '0043
>>10:18:01<<' using the command:PSET .
2010-07-25 10:18:02 - U0020239 Runtime warning in object 'JOBS.ORA.PING(2)', line '0043': PSET: Could not find parent
```

Primjer izvještaja – Post Proces report

- izvještaj koji se generira tokom obrade izlaza Oracle procedura

```
B007 - Report: JOBS.ORA.PING (2406275)
Activation Post processing Report Agent log
Copy Search... Refresh
2010-07-25 10:18:02 - U0020408 return_code=0
2010-07-25 10:18:02 - U0020408 Now is 10:18:01
2010-07-25 10:18:02 - U0020206 Variable 'MAIL_MESSAGE#' was stored with value 'Execution of 'JOBS.ORA.PING' is OK.
>>10:18:01<<'.
2010-07-25 10:18:02 - U0020408 Execution of 'JOBS.ORA.PING' is OK.
>>10:18:01<<
```

Internal reporting



Report

- standardni izlaz
- dbms_output package

Agent log

- komunikacija s Oracle bazom
- primjer uspješnog poziva
- primjer neuspješnog poziva

```
B007 - Report: JOBS.ORA.PING (2406275)
Activation Post processing Report Agent log
Copy Search... Refresh
In= Input parameter..
Now is 10:18:01
```

```
B007 - Report: JOBS.ORA.PING (2406275)
Activation Post processing Report Agent log
Copy Search... Refresh
2010-07-25 10:18:01 - U2000005 Start job 'JOBS.ORA.PING' with RunID '2406275'.
2010-07-25 10:18:01 - U2012001 Successfully established connection to 'srvkkc:1538/kkc' with user 'uc4_om'.
2010-07-25 10:18:01 Oracle
2010-07-25 10:18:01 Oracle Database 10g Enterprise Edition Release 10.2.0.4.0 - 64bit Production
2010-07-25 10:18:01 With the Partitioning, Data Mining and Real Application Testing options
2010-07-25 10:18:01 - U2012014 JDBC Driver version: 10.2.0.4.0
2010-07-25 10:18:01 declare
2010-07-25 10:18:01 txtout varchar2(200):='Input parameter..';
2010-07-25 10:18:01 begin
2010-07-25 10:18:01 dbms_output.put_line('In= ' || txtout);
2010-07-25 10:18:01 select to_char(sysdate,'HH24:MI:SS') into txtout from dual;
2010-07-25 10:18:01 dbms_output.put_line('Now is ' || txtout);
2010-07-25 10:18:01 end;
2010-07-25 10:18:01 - U2004026 Job script ended normally.
```

```
B007 - Report: JOBS.ORA.PING (2406394)
Activation Post processing Report Agent log
Copy Search... Refresh
2010-07-25 11:24:43 - U2000005 Start job 'JOBS.ORA.PING' with RunID '2406394'.
2010-07-25 11:24:44 - U2012001 Successfully established connection to 'srvkkc:1538/kkc' with user 'uc4_om'.
2010-07-25 11:24:44 Oracle
2010-07-25 11:24:44 Oracle Database 10g Enterprise Edition Release 10.2.0.4.0 - 64bit Production
2010-07-25 11:24:44 With the Partitioning, Data Mining and Real Application Testing options
2010-07-25 11:24:44 - U2012014 JDBC Driver version: 10.2.0.4.0
2010-07-25 11:24:44 declare
2010-07-25 11:24:44 txtout varchar2(200):='Input parameter..';
2010-07-25 11:24:44 begin
2010-07-25 11:24:44 dbms_output.put_line('In= ' || txtout);
2010-07-25 11:24:44 select to_char(sysdate,'HH24:MI:SS') into txtout from dual;
2010-07-25 11:24:44 dbms_output.put_line('Now is ' || txtout);
2010-07-25 11:24:44 end;
2010-07-25 11:24:44 ORA-06550: line 5, column 55:
FL/SQL: ORA-00942: table or view does not exist
ORA-06550: line 5, column 1:
FL/SQL: SQL Statement ignored
2010-07-25 11:24:44 - U2004025 Job-script execution was aborted.
2010-07-25 11:24:44 - U2012006 SQL Rollback executed
```

Activities



Prikaz aktivnosti na EJS sustavu

- statusi svih Oracle jobova trenutno aktivne obrade
- statusi scheduling objekata (trenutak slijedećeg izvršavanja i sl.)
- popis ostalih aktivnosti

Prilagođeni prikaz

- operaterska konzola
- praćenje točno određene obrade / statusa
- lakše i brže otklanjanje greške
- pilotska kabina – puno raznih indikatora

B006 - Activities: UC4 - 0100

Details Monitor Cancel Quit Deactivate Restart... Report Statistics Comments... >>

Name	Type	RunID	Parent	User	Start time	Prio.	Status
J5CH.PTD	JSCH	2403840		IFRA/PBZCARD	25.07.2010. 00:00:28	200	Active
J5CH.BILLING.CKS.HP22	JSCH	2403841		KKELEMENI/...	25.07.2010. 00:00:28	200	Active
J5CH.BILLING.CKS.HP1	JSCH	2403842		SMARI/PBZC...	25.07.2010. 00:00:28	200	Active
J5CH.BILLING.CKS.SG3	JSCH	2403843		KKELEMENI/...	25.07.2010. 00:00:29	200	Active
J5CH.VUBMPATP	JSCH	2403844		IFRA/PBZCARD	25.07.2010. 00:00:29	200	Active

77 Task(s) selected Filter: /*/*/*/*/*/*/*/*

Monitor

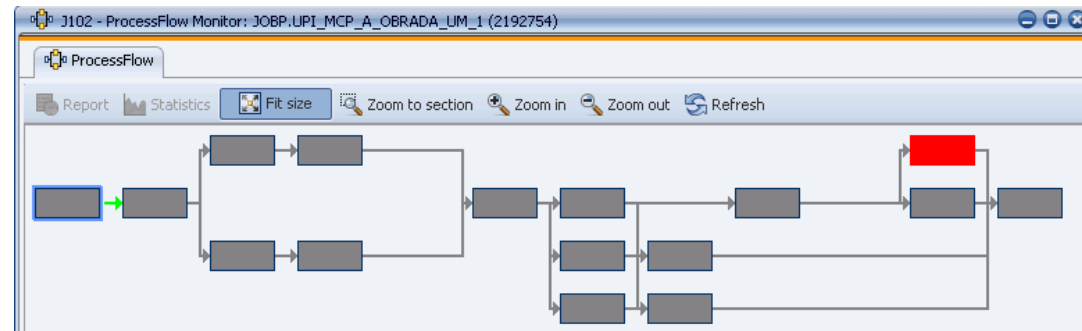


Grafički prikaz svakog procesa

- u pozadini monitora je process flow (job plan)
- boje nose informaciju statusi svakog prikazanog objekta
- uvid u poslovnu logiku svake obrade

Podržane akcije

- restart
- unblock
- cancel



Primjer:

- proces uredno završen
- ručno provjeren/odrađen problematični dio

Call operator mehanizam



Komunikacija sustava sa operaterom

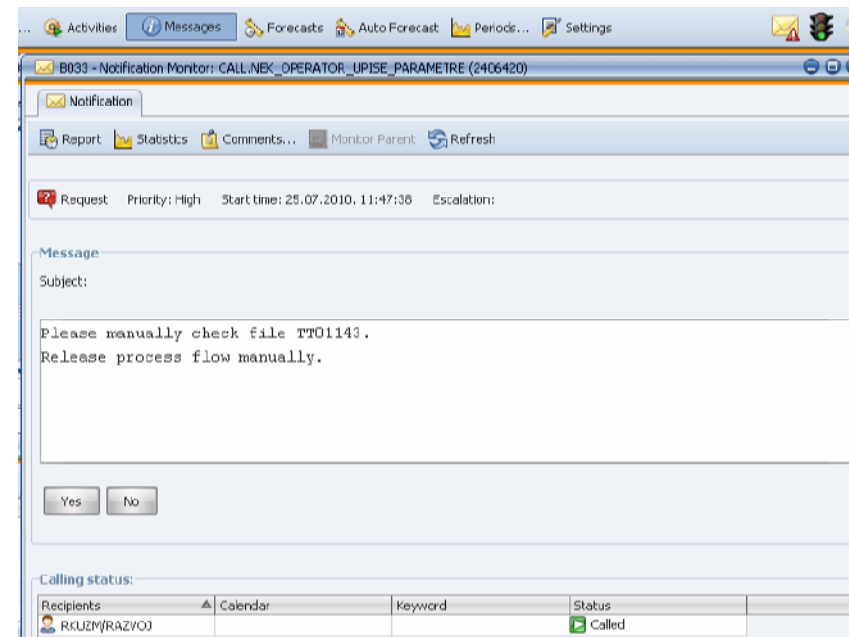
- signalizacija grešaka
- probijanje vremena početka
- nedostatak datoteka na ulazu
- eskalacije

Exception handler

- oracle job – post process
- slanje mailova

Timski rad

- alarmiranje grupe operatera
- gašenje alarma nakon preuzimanja od jednog člana



Sigurnost i administracija



PCI DSS standard

- kriptiranje i autentikacija (promet, server login)
- accounti na Oracle bazi nepoznati korisnicima

Agenti - executori

- prijavljuju se na EJS sustav
- zasebni accounti

Host:	<input type="text" value="HOSTG.SQL"/>
Login:	<input type="text" value="LOGIN.SQL_UC4_OM"/>

Administracija

- LDAP autentikacija
- ROLE based prava
- cockpit – samodetekcija stanja sustava

Zaključak



Uvođenje Enterprise Job Schedulera

- olakšano pokretanje obrada
- olakšano praćenje obrada
- upravljanje procesa sa jednog centraliziranog mjesta

Faktor ljudske greške

- reduciran – trenutak pokretanja jednoznačno definirano
- izbačeni nepotrebni prazni hodovi

Detekcija problema

- pravodobno obavještanje

Konstantno maksimalna kvaliteta pruženih usluga

- zadovoljen SLA
- konkurentnost na tržištu

Pitanja?



Detalji

- Post konferencijski DVD
- Referat

E-mail

- Rajko.Kuzma@intesasanpaolocard.com



INTESA SANPAOLO
CARD



☑ Hvala na pažnji ☑

Rajko Kuzma
Intesa Sanpaolo Card d.o.o.