

## PSH UniPay

### The Straight-Thinking Payment Services Hub



**UNIPAY**  
suite di disposizioni  
di pagamento

Catania, 26 Giugno 2015

## The Straight-Thinking Payment Services Hub

- 1. Payment Innovation: 'Key Requirements'**
- 2. PSH UniPay: Solution Overview**
- 3. SOA: Execution on a Services Workflow**
- 4. Intelligent Routing Parameterization: Case Studies**
- 5. SSI: Case Study & Demo**
- 6. PSH Remittance Web Portal for Correspondent Banks**

## The complex landscape of Applications to be interfaced

**Problem: which system can tie together so heterogeneous and various-aged technologies?**



### Front end systems

E-Channels  
*(real time)*

Branch Front end  
*(real time)*

Host-2-Host  
*(batch)*

Appl-2-Appl  
*(real time)*



### Back end systems

Core Banking  
*(real time & batch)*

AML-Compliance  
System  
*(real time)*

Regulatory  
Reporting  
*(real time & batch)*

Downstream  
Legacy Systems  
*(batch)*



### Payment Gateways

SWIFT Gateway  
*(real time)*

RTGS System  
*(real time & batch)*

ACH network  
*(batch)*

Bi-lateral network  
*(real time & batch)*

# Payment Innovation: 'Key Requirements'

## Key Requirements to be assessed

### Functional Requirement Categories

AML & Compliance
Automated processing
Bulking/De-bulking
Business Validations based on rules
Customer Notifications based on rules
Automated Duplicate Check
Automated Exception Processing
Intelligent Routing based on rules
Payment Investigation & Inquiry
Payment fees
Processing of R-Transaction
Payment Traceability
Parameterization: Rules Engine (product, payment, routing path...)
Product creation

### Technical Requirement

Data requirements
Security requirements
System Performance

### User Experience Assessment

'Ease of use'
Process workflow
Organizational adaption

# Payment Innovation: 'Key Requirements'

## Technical Area

## Key Requirements

### Data requirements



- Data model
- Data orchestration of multi entity data
- Mechanisms for segregating the multi entity data into different logical partitions
- Independence of batch and real-time partitions, to fulfill concurrent execution

### Security requirements



- Ability to integrate with external security providers (e.g. Oracle Identity Manager, etc.)
- Authentication mechanisms of the PSH solution leveraging from centralized security solutions (e.g. SSO, OTP, etc.)
- Ability to import into the PSH the external providers roles schemes (e.g. Swift Alliance Access LAU -Local Authentication-, based on HMAC-SHA256 algorithm)

### Performance requirements

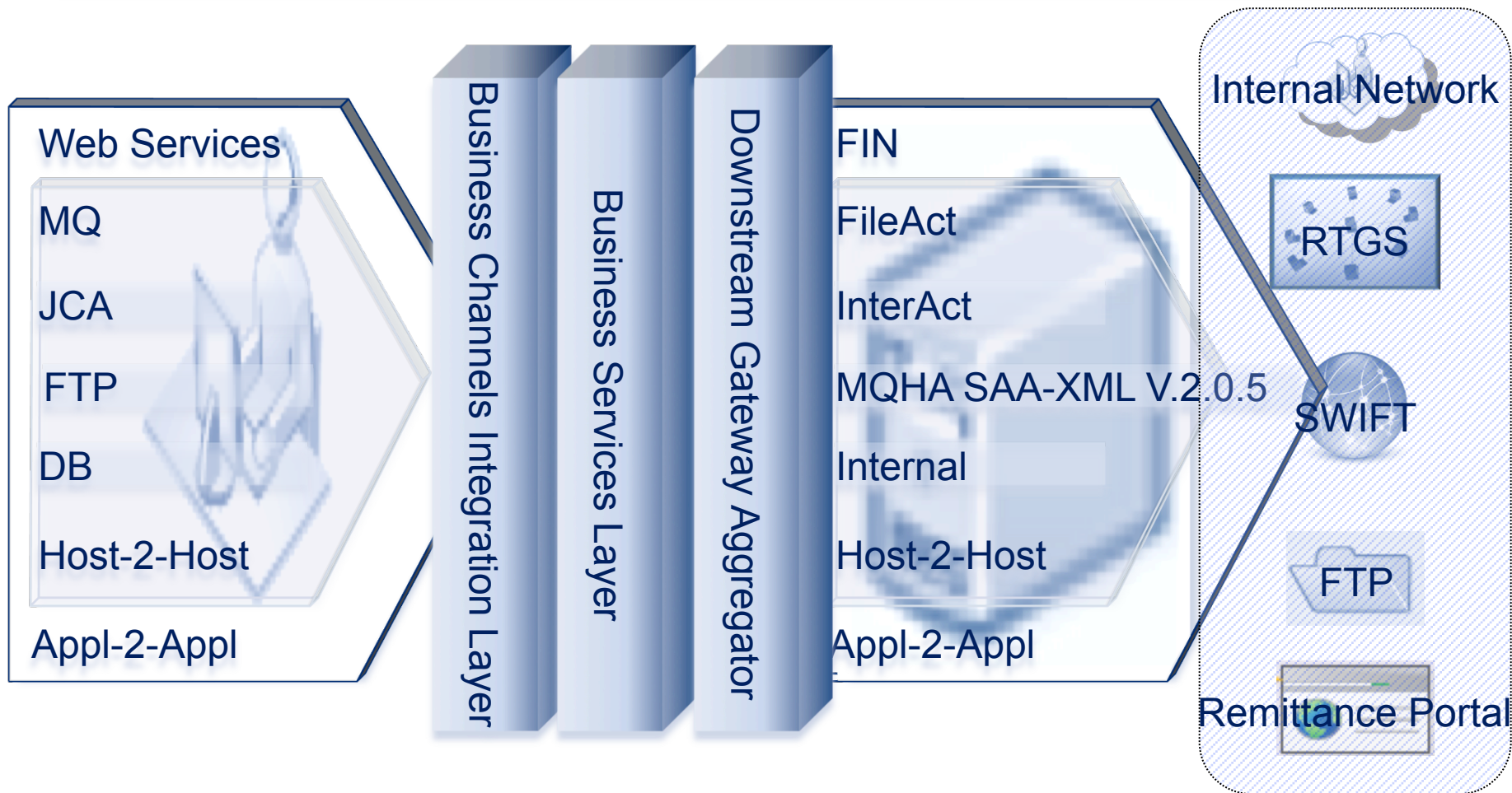


- Meet required threshold:
  - **Peak Time transaction per second (end-end): Min – 150/sec; Max – 1000/Sec**
  - **Average transaction per second (end-end): Min – 5/sec; Max – 200/Sec**
- Share the memory and CPU patterns during the run
- Performance management and monitoring tools available out of box with the solution

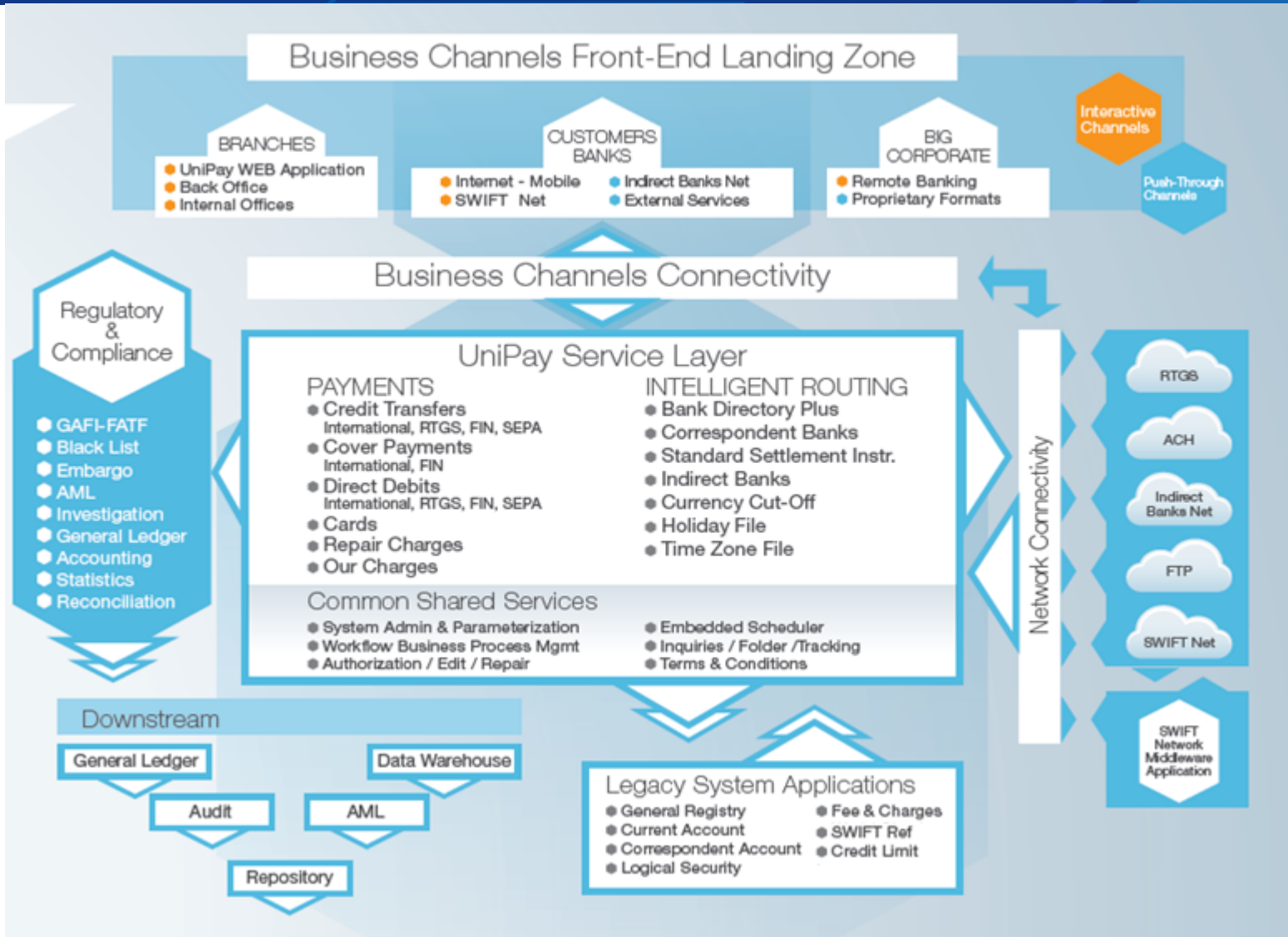
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## E-Channels towards Downstream Networks Connectivity



# PSH UniPay: Solution Overview





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## PSH UniPay Functional Model Legend

**Info Payments**

**Bank Information Systems**

**Business Organization Process**

**Common Services**

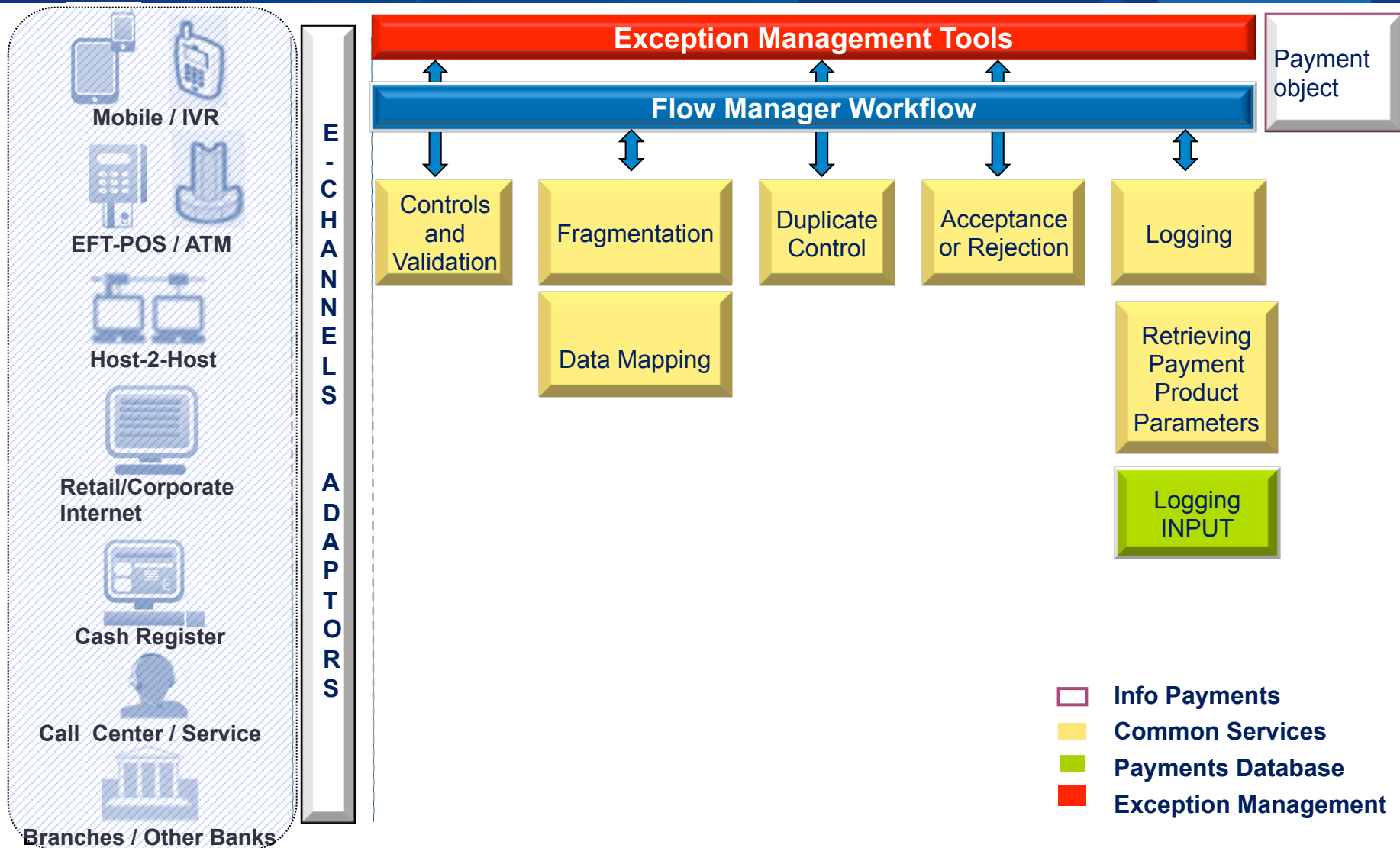
**Payment Services**

**Life Cycle**

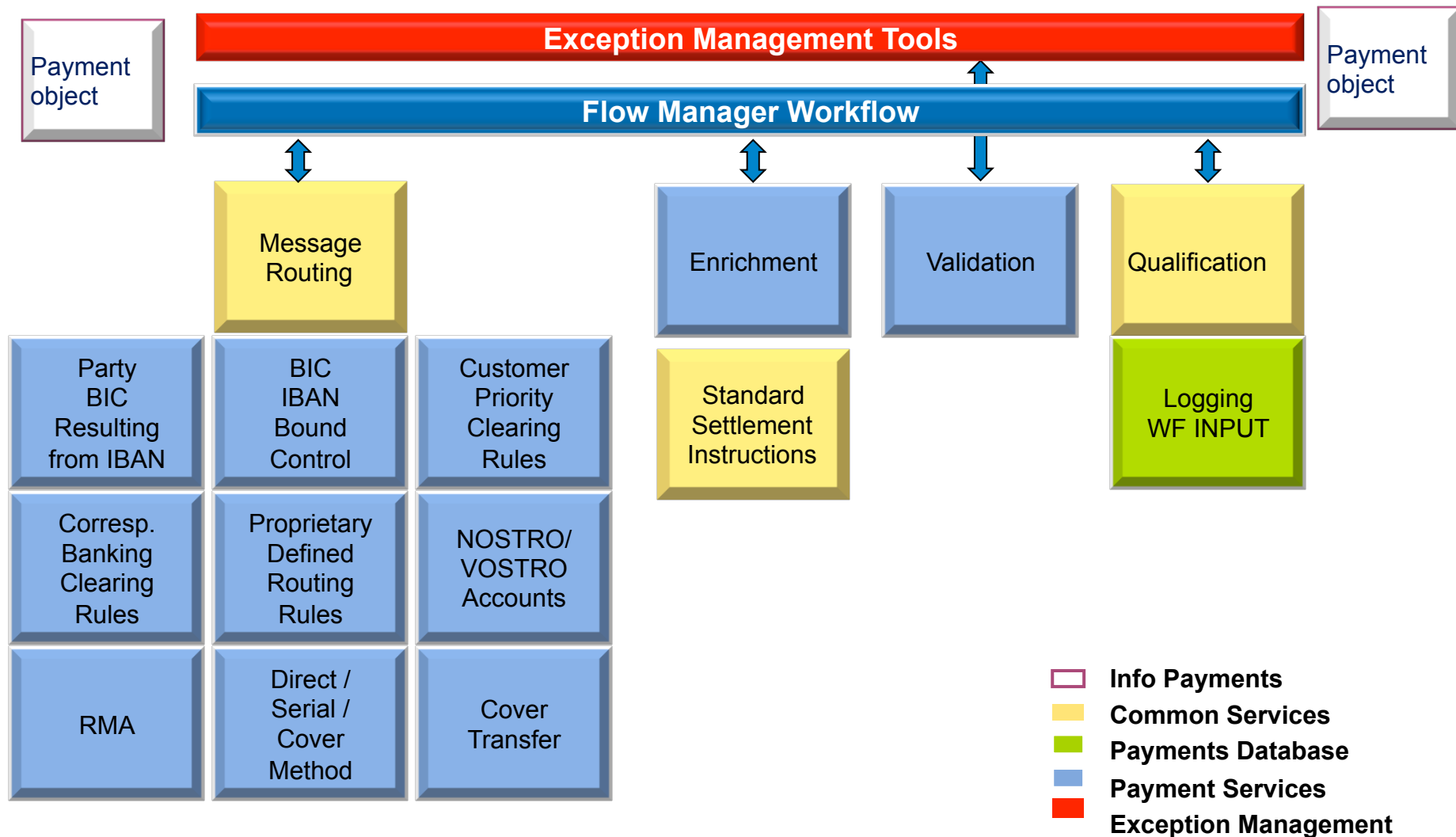
**Payments Database**

**Exception Management**

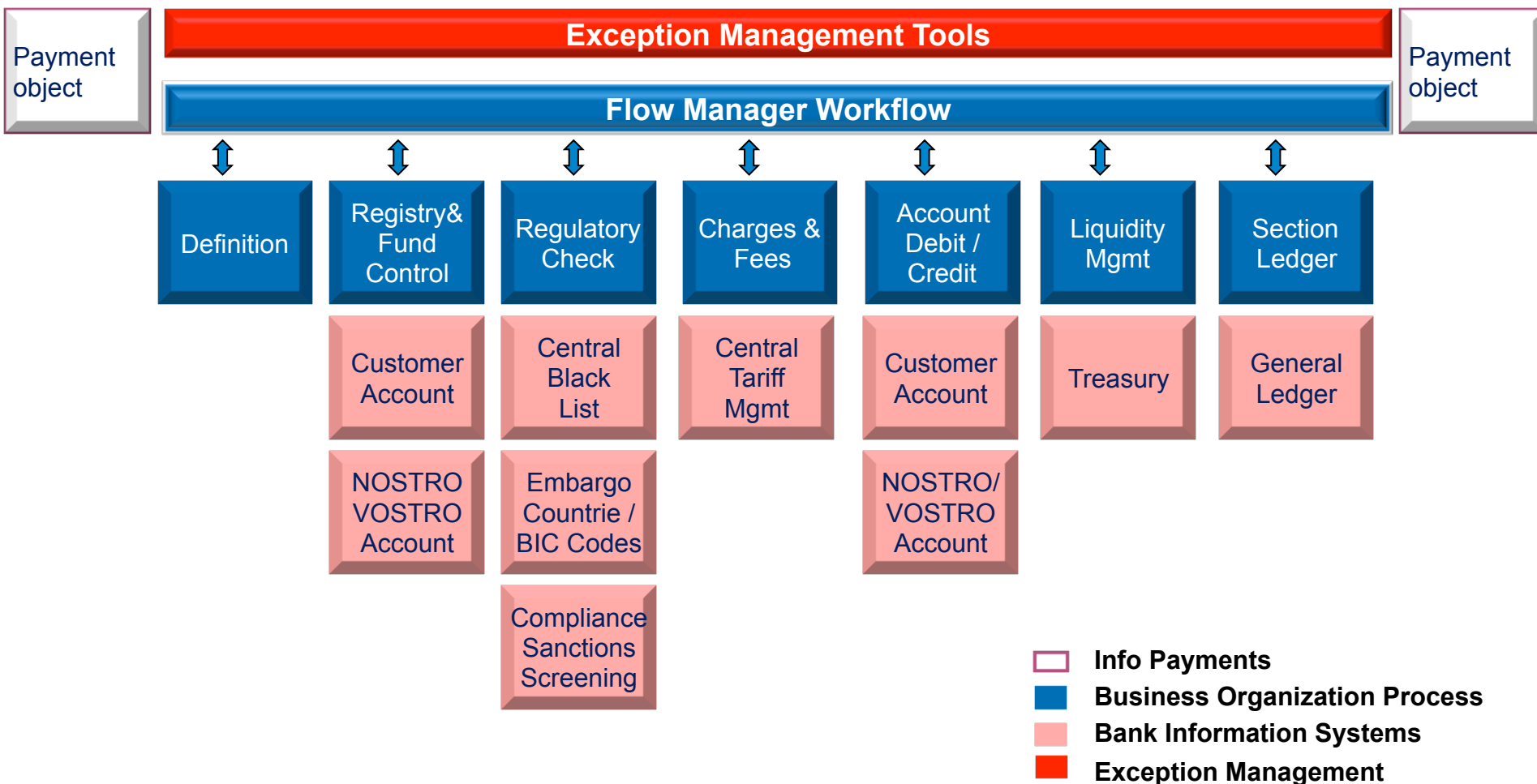
# SOA: Execution on a Services Workflow



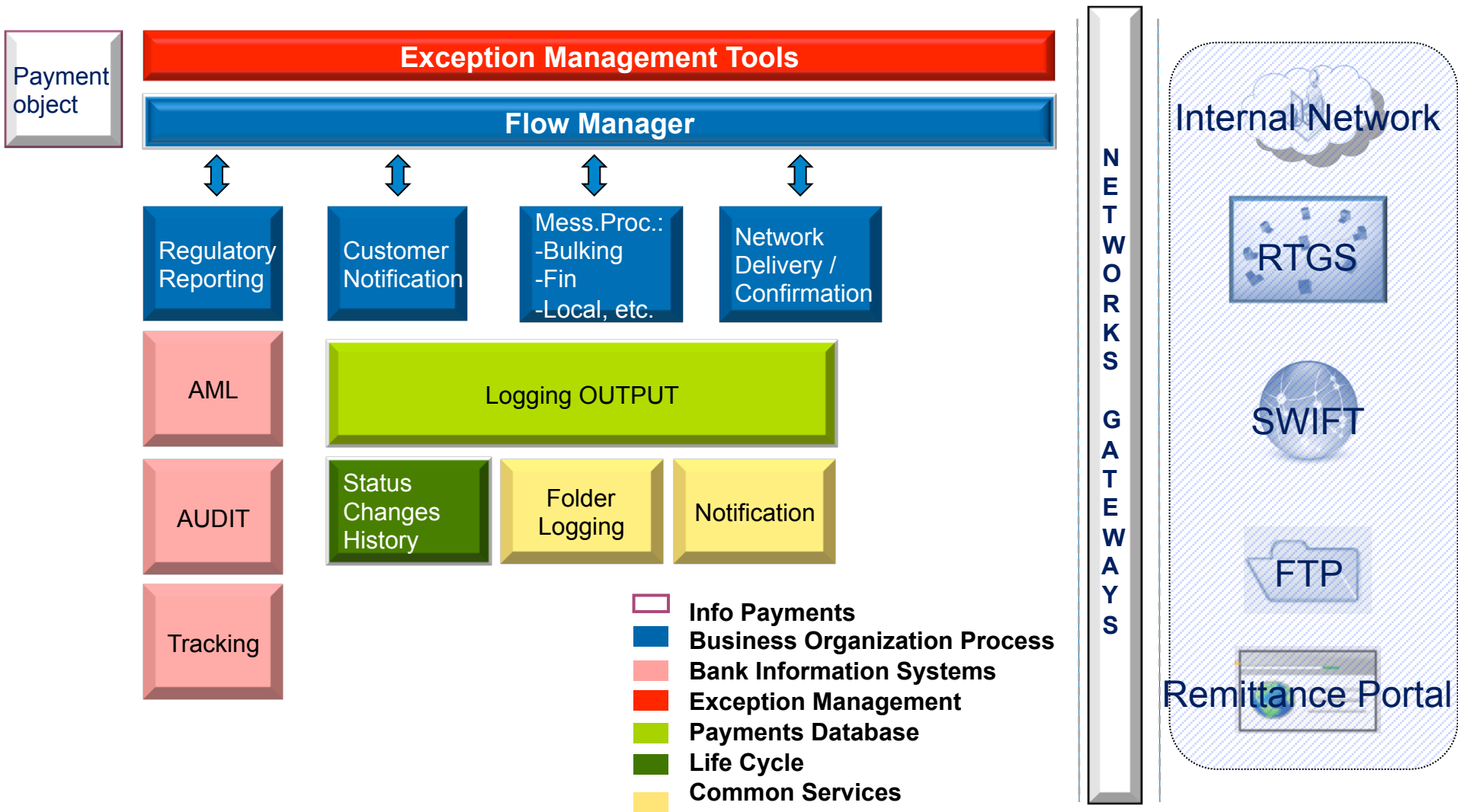
# SOA: Execution on a Services Workflow



# SOA: Execution on a Services Workflow



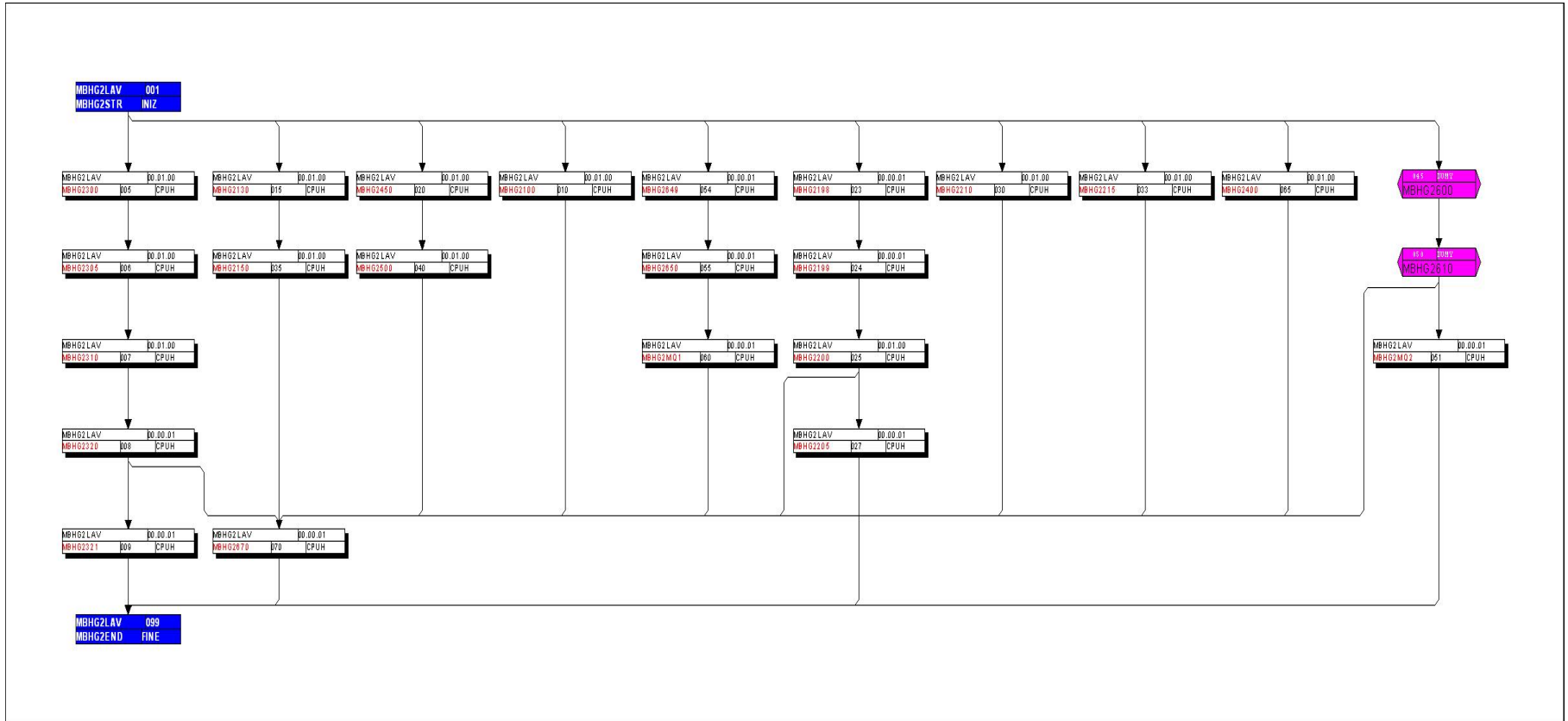
# SOA: Execution on a Services Workflow



## Flow Manager: Parameterization of Services & Report Sample

P90021_0010	P90021_H000	P90021_H001	P90021_A060	P90021_H008	P90021_H002	P90021_H003	P90021_1051	P90021_1052	P90021_4111	P90021_4112
9999.04	04	0006	1	04400	0007	P01A0BBL			2006-11-15-15.21.51.820044	2006-11-15-15.21.51.820044
9999.04	04	0006	1	35400	0009	P01A0BB4	43100	ASC	2006-11-15-15.21.52.748724	2006-11-15-15.21.52.748724
9999.04	04	0006	1	08690	0013	P01A0BB6	22190	-----	2006-11-15-15.21.52.255392	2006-11-15-15.21.52.255392
9999.04	04	0006	1	08411	0014	P01A0BB5	F8970	CAS	2006-11-15-15.21.52.280340	2009-12-10-18.49.04.368335
9999.04	04	0006	1	00710	0014	P01A0BB5	F8970	EUR	2006-11-15-15.21.52.280340	2009-12-10-18.49.04.270538
9999.04	04	0006	1	08690	0015	P03PP027		SCARICO	2006-11-15-15.21.52.280340	2006-11-15-15.21.52.280340
9999.04	04	0006	1	34409	0020	P03PP480	CTRL BK	BENEF.	2006-11-15-15.21.52.280340	2006-11-15-15.21.52.280340
9999.04	04	0006	1	DIGIT	0021	P01A0BB4	FSDDA	O	2010-04-07-09.16.01.043636	2010-04-07-09.16.01.043636
9999.04	04	0006	1	DIGIT	0022	P01A0BB4	FSDOA	O	2010-04-07-09.16.01.049810	2010-04-07-09.16.01.049810
9999.04	04	0006	1	00790	0025	P03PP008	ASSUNZ	CODICI	2006-11-15-15.21.51.781782	2006-11-15-15.21.51.781782
9999.04	04	0006	1	00000	0035	P03PP083	ASSUNZ	PARAMETR	2006-11-15-15.21.51.053675	2006-11-15-15.21.51.053675
9999.04	04	0006	1	00000	0039	P04PP006	CTRL OP.	OFFLINE	2006-11-15-15.21.52.700657	2008-11-28-17.51.53.256766
9999.04	04	0006	1	30010	0040	P03PP001	ASSUNZ	DATA	2006-11-15-15.21.52.700657	2006-11-15-15.21.52.700657
9999.04	04	0006	1	00000	0050	P03PP152	CR0315	CR0315	2006-11-15-15.21.51.073690	2006-11-15-15.21.51.073690
9999.04	04	0006	1	10430	0060	P03PP025	ASSUNZ	ANAG.	2006-11-15-15.21.52.325623	2006-11-15-15.21.52.325623
9999.04	04	0006	1	08661	0065	P03PP026	ASSUNZ	ANAG.	2006-11-15-15.21.52.232746	2006-11-15-15.21.52.232746
9999.04	04	0006	1	08560	0070	P03PP025	ASSUNZ	ANAG.	2006-11-15-15.21.52.132482	2006-11-15-15.21.52.132482
9999.04	04	0006	1	04416	0071	P03PP021	ASSUNZ	ANAG.	2006-11-15-15.21.51.897900	2006-11-15-15.21.51.897900
9999.04	04	0006	1	00710	0073	P03PP018	CONTR.	DIV	2006-11-15-15.21.51.690851	2006-11-15-15.21.51.690851
9999.04	04	0006	1	00710	0075	P03PP043	ASSUNZ	CAMBIO	2006-11-15-15.21.51.718110	2006-11-15-15.21.51.718110
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9999.04	04	0006	1	007T0	0081	P03PP010	ASSUNZ.	DIVISA	2006-11-15-15.21.51.626308	2006-11-15-15.21.51.626308
9999.04	04	0006	1	0072A	0090	P03PP009	ASSUNZ.	DIVISA	2006-11-15-15.21.51.732317	2006-11-15-15.21.51.732317
9999.04	04	0006	1	007D0	0119	P03PP018	DIVISA	EURO	2006-11-15-15.21.51.565925	2006-11-15-15.21.51.565925
9999.04	04	0006	1	04409	0120	P03PP021	CONTR.	PRESENZA	2006-11-15-15.21.51.870800	2006-11-15-15.21.51.870800
9999.04	04	0006	1	00000	0121	P03PP262	ASSUNZ	SWIFT	2006-11-15-15.21.51.093818	2006-11-15-15.21.51.093818
9999.04	04	0006	1	08690	0122	P03PP027	anagrafe	bk ben	2006-11-15-15.21.52.287082	2006-11-15-15.21.52.287082
9999.04	04	0006	1	04400	0130	P03PP021	CONTR.	PRESENZA	2006-11-15-15.21.51.841564	2006-11-15-15.21.51.841564
9999.04	04	0006	1	04419	0132	P03PP021	CONTR.	PRESENZA	2006-11-15-15.21.51.905164	2006-11-15-15.21.51.905164
9999.04	04	0006	1	04449	0133	P03PP021	CONTR.	PRESENZA	2006-11-15-15.21.52.011596	2006-11-15-15.21.52.011596
9999.04	04	0006	1	04419	0134	PMD04409	PAESE	MUOVE	2006-11-15-15.21.51.933274	2006-11-15-15.21.51.933274
9999.04	04	0006	1	00000	0135	E100CCTR	CONTR	CAT. CTR	2006-11-15-15.21.51.125090	2006-11-15-15.21.51.125090
9999.04	04	0006	1	00000	0136	E100CCDL	CONTR.	CONGR.	PAESI-DIVISE	-----
9999.04	04	0006	1	00000	0137	P03PP167	ASSUNZ	CIRCUITI	2006-11-15-15.21.51.158017	2006-11-15-15.21.51.158017
9999.04	04	0006	1	0444B	0154	P03PP021	CONTR.	PRESENZA	2006-11-15-15.21.51.984863	2006-11-15-15.21.51.984863
9999.04	04	0006	1	0441B	0155	P03PP021	CONTR.	PRESENZA	2006-11-15-15.21.51.883632	2006-11-15-15.21.51.883632
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9999.04	04	0006	1	35400	0165	P03PP084	ASSUNZ	MEZZO	2006-11-15-15.21.52.814135	2006-11-15-15.21.52.814135
9999.04	04	0006	1	00000	0173	P03PP172	CALCOLO	IBAN	2006-11-15-15.21.51.248801	2006-11-15-15.21.51.248801
9999.04	04	0006	1	00000	0189	P03PP024	CONTROLL	CONGRUIT	2006-11-15-15.21.51.298133	2006-11-15-15.21.51.298133
9999.04	04	0006	1	00000	0190	P03PP638			2009-10-07-16.34.50.560850	2009-10-07-16.34.50.560850
9999.04	04	0006	1	00820	0200	P03PP003	ASSUNZ	DATA	2006-11-15-15.21.51.791552	2006-11-15-15.21.51.791552
9999.04	04	0006	1	CVSA	0205	MINIFLOW	MINI FL	CVS	2006-11-15-15.21.50.863517	2006-11-15-15.21.50.863517

## Batch: Scheduling on the basis of high phases parallelization





## Batch: Scheduling mixing sequential and parallel phases



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## Case Study 1: INR – Indian Rupee / All Countries

✓ **Master Rule\*:**

Any payment where AWI bank is one of the NOSTRO correspondent in the country & currency, the payment should be directly routed to it; rather than going to any other correspondent

<i>Correspondent relationship with banks in INR CCY</i>	
ICICINBB	ICICI Bank
FDRLINBB	Federal Bank
SBININBB	State Bank of India (SBI)

<i>INR Remittances Bank Routing Rules</i>	
If Purpose code is 'P1033' & Remitter Type is Corporate	then Correspondent should be ICICI
If Purpose code is 'P1032' & Beneficiary Type is Retail	then Correspondent should be State Bank of India
If Beneficiary Type is Retail	then Correspondent should be ICICI

<i>INR Remittances Bank Payment Network Rules</i>	
Transmission to ICICI & State Bank of India	The message should be sent via Bi-Lateral Clearing Network 'EPAY'
Transmission to Federal bank	Message should be sent via SWIFT network

\*Note: This rule should over-ride any other routing rule. In other words this rule should be highest hierarchy

# Intelligent Routing Parameterization

E-Pr.E.M.I.A 2.0 - Exp - Microsoft Internet Explorer fornito da Enterprise Spa

Exception Handling | Intelligent Routing | Terms and Conditions | Executive Summary | Uscita

SERIAL PAYMENT RULES | AND INVESTMENT COR | DIP3485 | 15/10/2014 | 474 | 17:58:36

General Information | Other Banks

**Banks for Delivering**

Fun. Group: 04 | Function: 0006 | Channel Type: | Charge Type: |  
 Country: 0 | Currency: INR | Routing Frequency: Daily | City: |

**Bank N. n.1**

Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
000000170471	NDG	00000		01	9999999999999999	SER	--
<b>Business Name</b>	<b>Purpose</b>	<b>Remitter</b>	<b>Beneficiary</b>	<b>% Vol.Routing</b>	<b>Network</b>		
ICICI BANK LIMITED			Retail		EPAY		

**Bank N. n.2**

Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
000000170471	NDG	00000		02	9999999999999999	SER	--
<b>Business Name</b>	<b>Purpose</b>	<b>Remitter</b>	<b>Beneficiary</b>	<b>% Vol.Routing</b>	<b>Network</b>		
ICICI BANK LIMITED	P1033	Corporate			EPAY		

**Bank N. n.3**

Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
000000067928	NDG	00000		03	9999999999999999	SER	--
<b>Business Name</b>	<b>Purpose</b>	<b>Remitter</b>	<b>Beneficiary</b>	<b>% Vol.Routing</b>	<b>Network</b>		
FEDERAL BANK LIMITED (THE)					EPAY		

**Bank N. n.4**

Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
000000001676	NDG	00000		04	9999999999999999	SER	--
<b>Business Name</b>	<b>Purpose</b>	<b>Remitter</b>	<b>Beneficiary</b>	<b>% Vol.Routing</b>	<b>Network</b>		
STATE BANK OF INDIA	P1032		Retail		Swift		

**Bank N. n.5**

Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
	NDG						
<b>Business Name</b>	<b>Purpose</b>	<b>Remitter</b>	<b>Beneficiary</b>	<b>% Vol.Routing</b>	<b>Network</b>		

✓ Siti attendibili | Modalità protetta: disattivata | 100%

## Case Study 2: USD – US Dollars / All Countries

- ✓ **Master Rule\*:**  
Any payment where AWI bank is one of the NOSTRO correspondent in the country & currency, the payment should be directly routed to it; rather than going to any other correspondent

<i>Correspondent relationship with USD Bank</i>	
CHASUS33	JPMorgan ChaseBank
CITIUS33	Citibank N.A. USA

<i>USD Remittances Bank Routing Rules</i>	
JPMorgan ChaseBank CHASUS33	<ul style="list-style-type: none"> <li>• Priority: <b>1</b></li> <li>• Routing Percentage: <b>75%</b></li> </ul>
Citibank N.A. USA CITIUS33	<ul style="list-style-type: none"> <li>• Priority: <b>2</b></li> <li>• Routing Percentage: <b>25%</b></li> </ul>

\*Note: This rule should over-ride any other routing rule. In other words this rule should be highest hierarchy

# Intelligent Routing Parameterization

https://www.ent4bank.it/ - E-Pr.E.M.I.A 2.0 - Exp - Microsoft Internet Explorer fornito da Enterprise Spa

Exception Handling | Intelligent Routing | Terms and Conditions | Executive Summary | Uscita

SERIAL PAYMENT RULES | AND INVESTMENT COR | DIP3485 | 20/10/2014 | 160 | 10:50:53

General Information | Other Banks

**Banks for Routing**

Fun. Group: 04 | Product: 0006 | Channel Type: | Charge Type: |  
 Country: 69 | Currency: USD | Routing Frequency: Daily | City: |

Bank N. n.1							
Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
000000017721	CIC	00000		01	9999999999999999	SER	--
Business Name	Purpose	Remitter	Beneficiary	% Vol.Routing	Network		
JPMORGAN CHASE BANK NA	--	--	--	075	SWIFT		

Bank N. n.2							
Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
000000002513	CIC	00000		02	9999999999999999	SER	--
Business Name	Purpose	Remitter	Beneficiary	% Vol.Routing	Network		
CITIBANK NA	--	--	--	025	SWIFT		

Bank N. n.3							
Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
	CIC						
Business Name	Purpose	Remitter	Beneficiary	% Vol.Routing	Network		

Bank N. n.4							
Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
	CIC						
Business Name	Purpose	Remitter	Beneficiary	% Vol.Routing	Network		

Bank N. n.5							
Number	Type	Bra.	City	Pri.ty	Am. Up to	Channel	Charges
	CIC						
Business Name	Purpose	Remitter	Beneficiary	% Vol.Routing	Network		

Fine | Internet | Modalità protetta: disattivata | 100%

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## Integrazione Standard Settlement Instructions

Aree di Business integrate	SWIFT: Messaggistica FIN MTs arricchimento automatico SSI
Payments	MT 103, 102* STP - MT 202 Cov
Collections	MT 400 - MT 202
Financial Institution Transfers	MT 200, 201* - MT 202, 203*

\* Messaggio Equivalente Multiplo



## Intelligent Routing Engine e Completamento Automatico SSI

Tag / option	Definizione	Routing Engine	SSI
Receiver	<ul style="list-style-type: none"> <li>- Banca del Beneficiario (RMA e C/Nos) - direct</li> <li>- Banca del Beneficiario (solo RMA) - cover</li> <li>- Nostra Incaricata (solo RMA) - cover</li> <li>- Nostra Corrispondente (RMA e C/Nos) - serial</li> </ul>	✓	
52a - 'A'	Banca Ordinante	✓	
53a - 'A'*	Nostra Corrispondente	✓	
54a - 'A'	Corrispondente del Receiver		✓
56a - 'A'	Corrispondente della Banca del Beneficiario		✓
57a - 'A'	Banca del Beneficiario	✓	

\* Può essere in opzione 'B', con l'obbligo di presenza della sezione 'Party Identifier'

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## PSH Remittance Portal: the E-Payments Frontier Evolution

### Appl-2-Appl Instant Payment



- Based on two Web Services:
  - 1. 'Beneficiary Account Validity' (PSH UniPay calls for account validity)
  - 2. 'Funds Transfer & Confirmation' (PSH UniPay calls for execution and gains immediate payment response)
- Funds are immediately available on the Beneficiary Account

### Remittance Web Portal for Banks



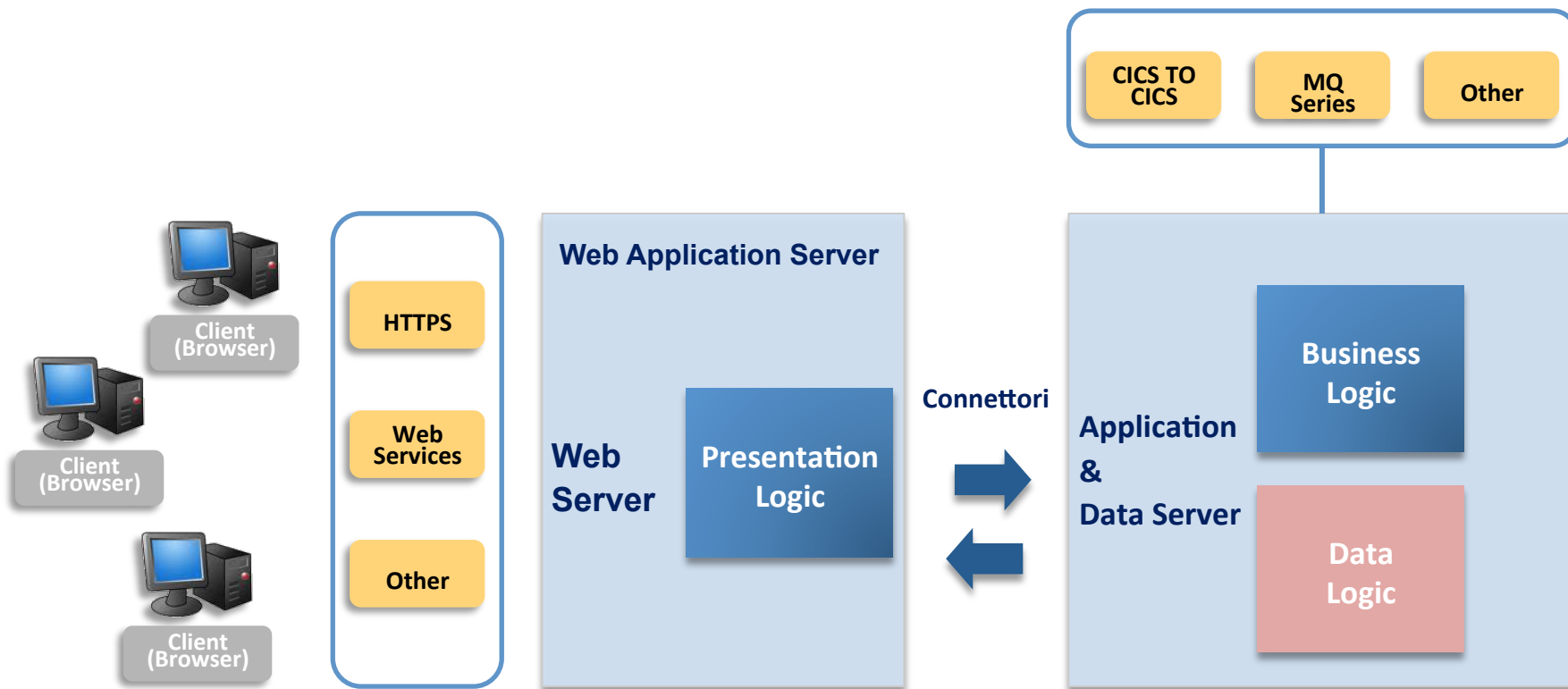
- PSH UniPay makes payments available towards 'PSH Web Portal for Banks'
- Correspondent Banks access 'PSH Remittance Web Portal for Banks' and:
  - 1. Inquiry for incoming payments
  - 2. Download payments (available in several formats, single or bulk file)
  - 3. Upload payment results

### Host-2-Host Store & Forward



- PSH UniPay collects payments and, depending on several scheduled cut-off:
  - 1. Wait for Correspondent Banks to call and get the list of payments (via Web Service)
  - 2. Call, via Web Service, Correspondent Banks to transmit the list of payments

## Technical Overview





# Grazie per l'attenzione

## **Enterprise Spa**

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