



Opsol

Tools for HPE
NonStop

OmniPayments

Payments as a
Service

Yash@OmniPayments.com

The OmniPayments Family

Banking



Banco Agrario
de Colombia



Nordea



Retailers



Telcos



Processors



compraquí
de BancoEstado

Partners



Opsol achievements



- Atalla Boxcar, ARM
- TUXEDO, CORBA
- Telco - OmniMessaging 3,000 cpus
- OmniPayments Switch as Base24 Replacement
- OmniCloudX

1995

2000

2004

2008

2013

2017



- OmniChannel
- Signon Service

- Fraud Blocker



OmniPayments achievements



**Hewlett Packard
Enterprise**

- ❑ APIs JSON, XML
- ❑ Mobile Payments



Google Cloud

- ❑ OmniPayments NSX
Goggle Day – Dec 6

2018

2019

2021

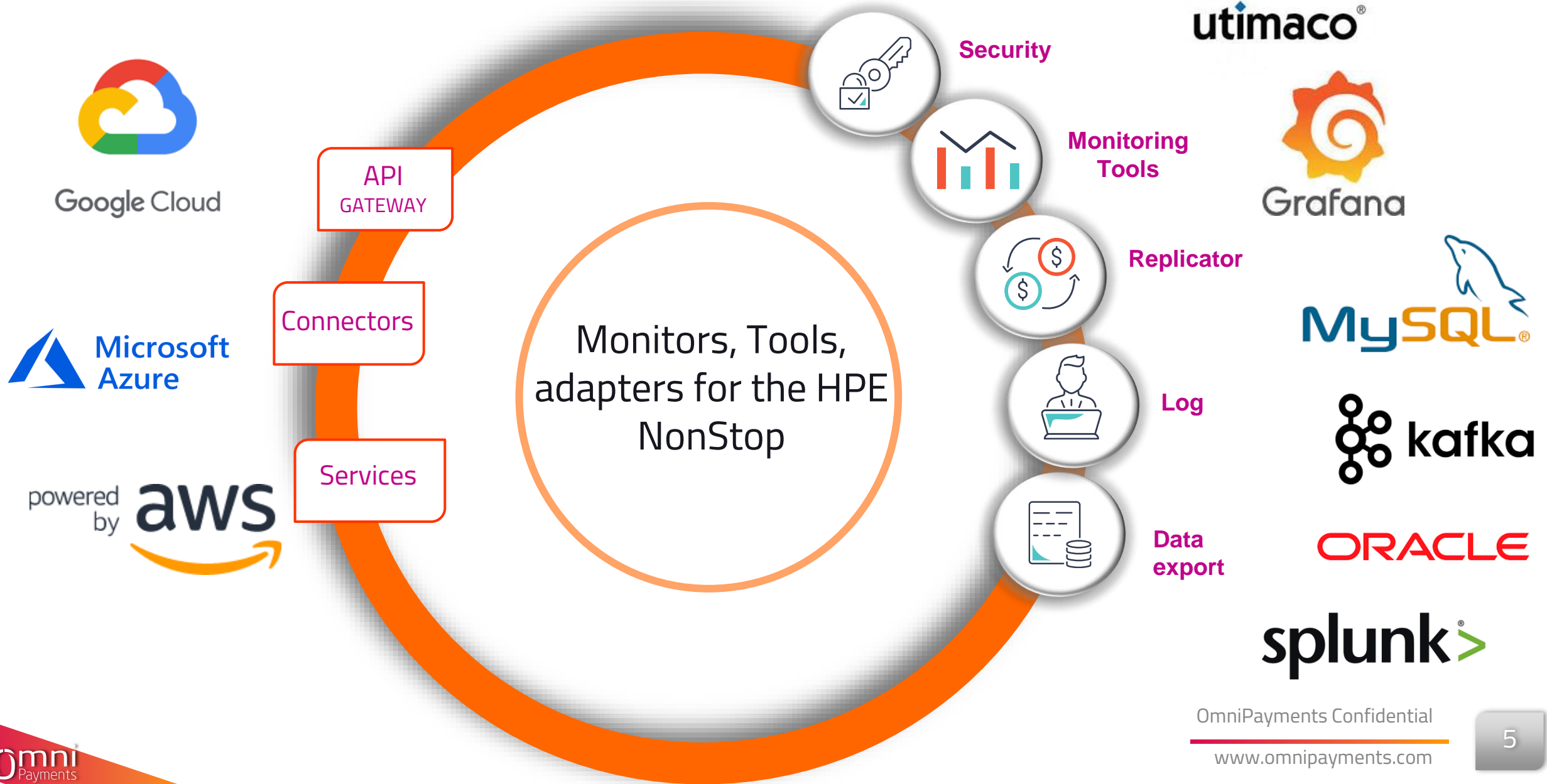
2022

2023

2024



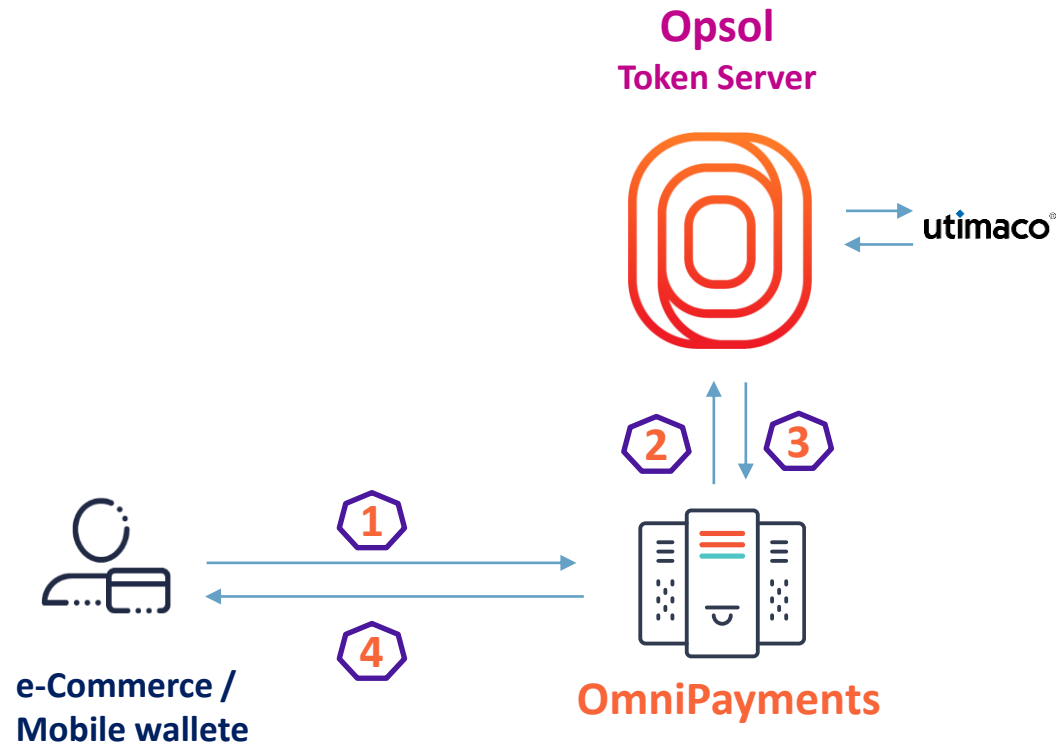
Opsol Tools



Opsol Tools

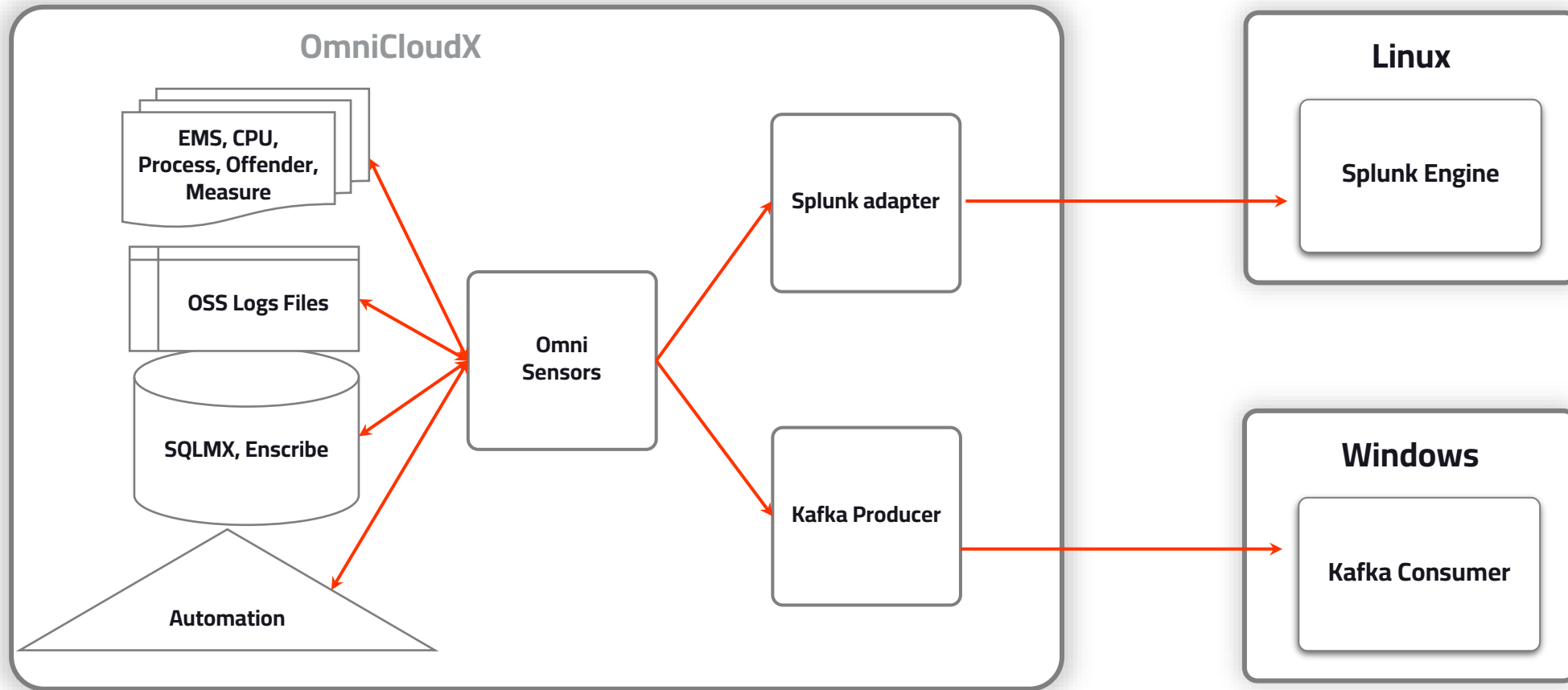
1. **Connectors** – Connectors for the Public Cloud GCP, Azure, AWS
2. **VNS in GCP** – Services to migrate customers to VNS in GCP
3. **API Gateway** – JSON, XML Apis for existing applications
4. **Security** – Pin, Password manager
5. **Security** – PCI Token Server
6. **Monitoring Tools** – Process busy, CPU busy, Offender, EMS
7. **Replicator** – Replication between 2 NonStops, MySQL, Oracle
8. **Log** – PTLF, PTLF real time GUI
9. **Data export** – SQL, Enscribe data to Splunk, Kafka, MySQL, Oracle

Token server Architecture

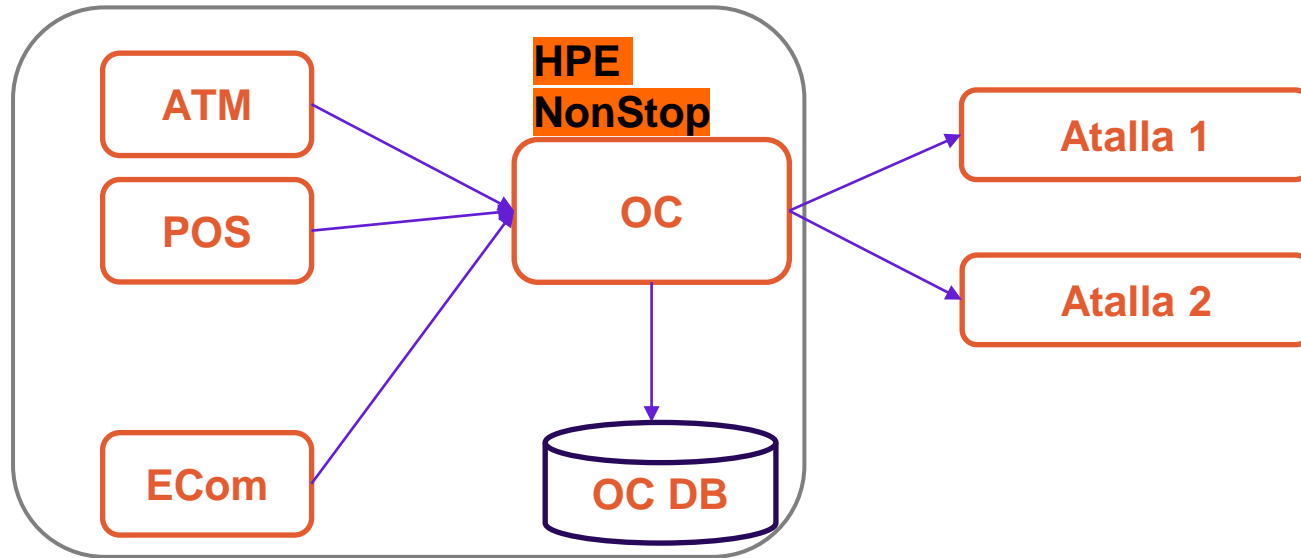


1. Consumer sends a token request through Merchant's e-Commerce site / Mobile Wallete.
2. Opsol token server API for token generation
3. Opsol Token Vault will generate the Token using Software or Atalla Hardware. PCI 4.0 requirement.
4. OmniPayments will reply with the Token.

OmniSplunk | OmniKafka - 500 tps



PIN, Password, Key Manager



1. Pin, Password – Verify PINs and Passwords using HSMs
2. Session Manager - Generate Signon Sessions and Cookies using HSMs
3. Key Manager – Generate and Manage ATM, POS, Visa Keys
4. Token server – uses Hardware to generate Tokens. PCI 4.0
5. JWT, OAUTH2 – security for e commerce sessions
6. TLS – high performance TLS server
7. Atalla Resource Manager, Boxcar

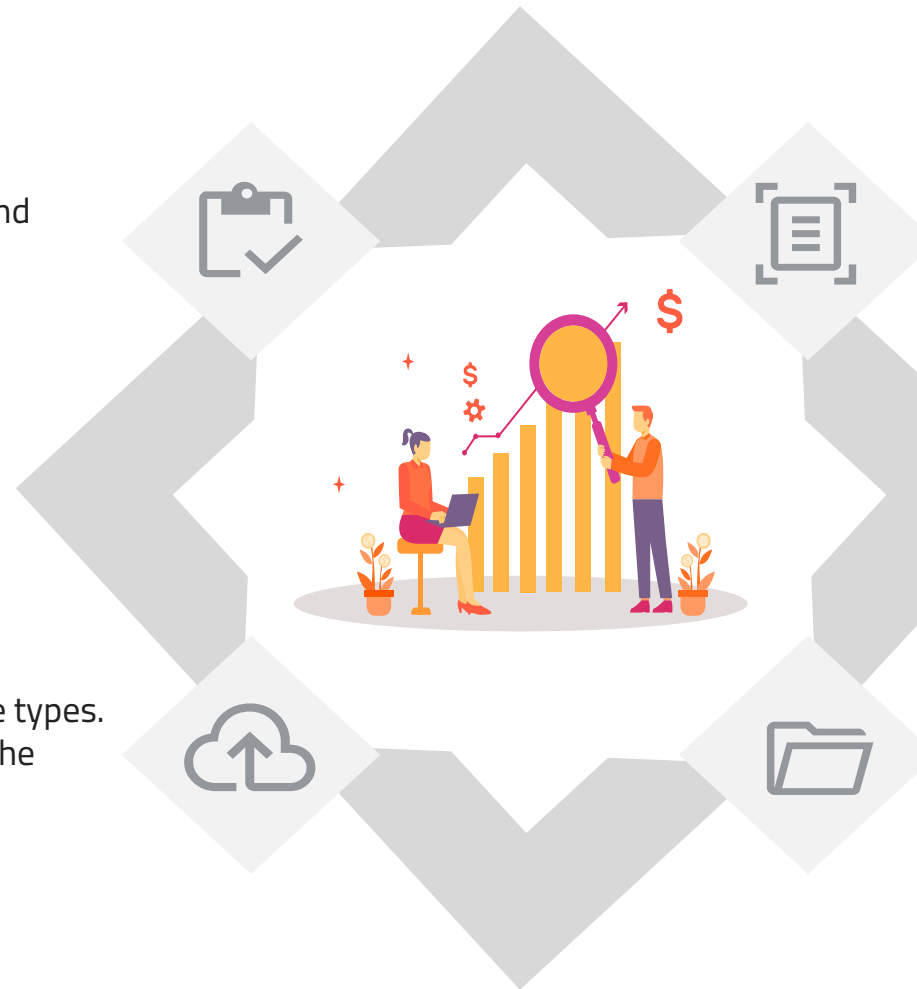
Sensor \$500 per month

OSS Log Files Sensor

- Monitors the configured OSS log files and sends the new information to Splunk.
- Trickles log file information.

Enscribe Files Sensor

- Sends *Enscribe* file changes to Splunk.
- Supports Key sequence and Relative file types.
- Formats the records based on DDL for the Enscribe file
- Samples and sends the important data.
- Mask sensitive information



Audit Trail Sensor

- Sends Audit trail changes to Splunk
- Can sample and send relevant information
- Mask Card numbers before sending

Offender Sensor

- CPU busy
- Process Busy
- Disk busy
- Measure data

EMS Sensor

- Sends EMS information to Splunk.
- Supports filters and EMS tokens before sending to Splunk.

Offender – system monitor

```

\OPTX1      2023/05/02 11:02:56      Interval  0:00:04
Cpu Avg    |issuu      10
 0 X?      |issuuu     16
 1 X?      |isssss     11 Mem DiscIO
 2 X?      |suuu       10
 3 X?      |ss         5 DiscIO

 0      +      +      +      +      +      +      +      +      +      |
 10     20     30     40     50     60     70     80     90     100

Process    Pri  User Id Program      Busy      Total Cpu      Elapsed
0,953     090  255,5  $SYSTEM.OFFENDER.OFFENDER  9          8:35:27      28:05:04:19
0,966     148  255,5  $SYSTEM.OFFENDER.OFFENDER  9           0:00:16           0:05:28
2,1434    120   2,1   $OMNI05.ZYQ00003.Z000006C   6           6:03:01      50:02:34:49
1,380     220  255,255 $OMNI07          5          1:05:36:37      627:08:22:33
2,901     090   3,1   $OMNI15.ZYQ00004.Z00007BJ   3           15:20:34      300:07:27:14
0,565     090   2,1   $OMNI07.ZYQ00003.Z0001TJX   3           0:21:02       19:11:17:28
0,295     255  255,255 TSMSGIP          2           2:09:47:34      627:08:36:29
1,426     220  255,255 $OMNI07          2           2:00:36      627:08:22:33
1,296     255  255,255 TSMSGIP          2           2:00:14:43      627:08:22:33

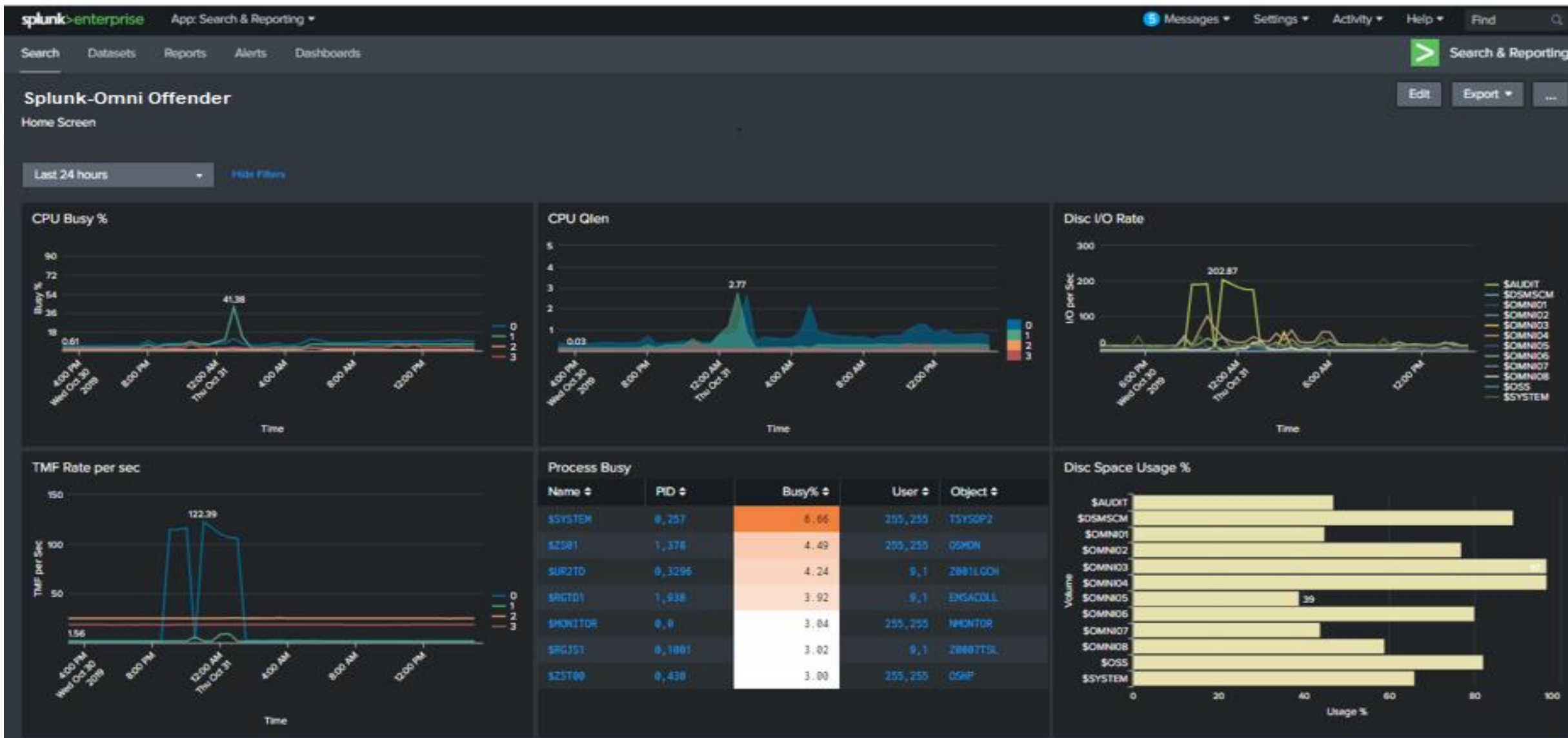
Disc       Process    Requests  RcvQ  Busy  DiscIO  CHit  Swaps  Bytes
$OMNI15-P  3,394      170.6    0     9     39.7    0     0.0   166526
$OMNI15-M  3,394      173.1    0     9     40.2    0     0.0   168403
$OMNI07-P  1,380        0.0    0    53    263.0   0     0.0  13481285
$OMNI07-M  1,380        0.0    0    52    258.4   0     0.0  13184092
$OMNI02-P  2,367      46.0    0     0     2.5    0     0.0   24289
$OMNI02-M  2,367      46.0    0     0     2.5    0     0.0   24287
$OMNI01-P  0,384        0.0    0     8     18.0   99     0.0   144811
$OMNI01-M  0,384        0.0    0     8     18.0   99     0.0   144832

          Process  Busy  Msgs  Bytes  Reads  Writes  DiscRd
$OMNI16.BEGEOPPZ.LSTUEGP  2,824  99    0.4    0    0.0    0.0    0.0
$OMNI17.BEVISAPZ.LSTUEVI  3,1141  99    7.1    0    0.0    0.0    0.0
$OMNI01.OLMPZ.REGQN      1,809  99    0.0    0    0.0    0.0    0.0
$OMNI07.CLDVPPZ.LETUED   0,565  99   3671.0  6240782  3671.0  0.0    217.7
$OMNI16.BEMPOSPZ.LSTUEMP  0,927  96    3.4    0    0.0    0.0    0.0
$OMNI03.CSPROSPZ.LSTUEPR  2,929  95    1.8    0    0.0    0.0    0.0
$OMNI16.BEGEOPPZ.LSTUEGP  2,560  95    3.4    0    0.0    0.0    0.0
$OMNI17.BEVISAPZ.LSTUEVI  2,592  91    7.0    0    0.0    0.0    0.0
$OMNI07.CLTRDPZ.LETUEWB  2,1205  37   255.2    0   255.2  0.0   256.6
$OMNI01.OLM1.ZZEV3187    0,529   6    7.5   27450  0.0    7.5    0.0
?q

```



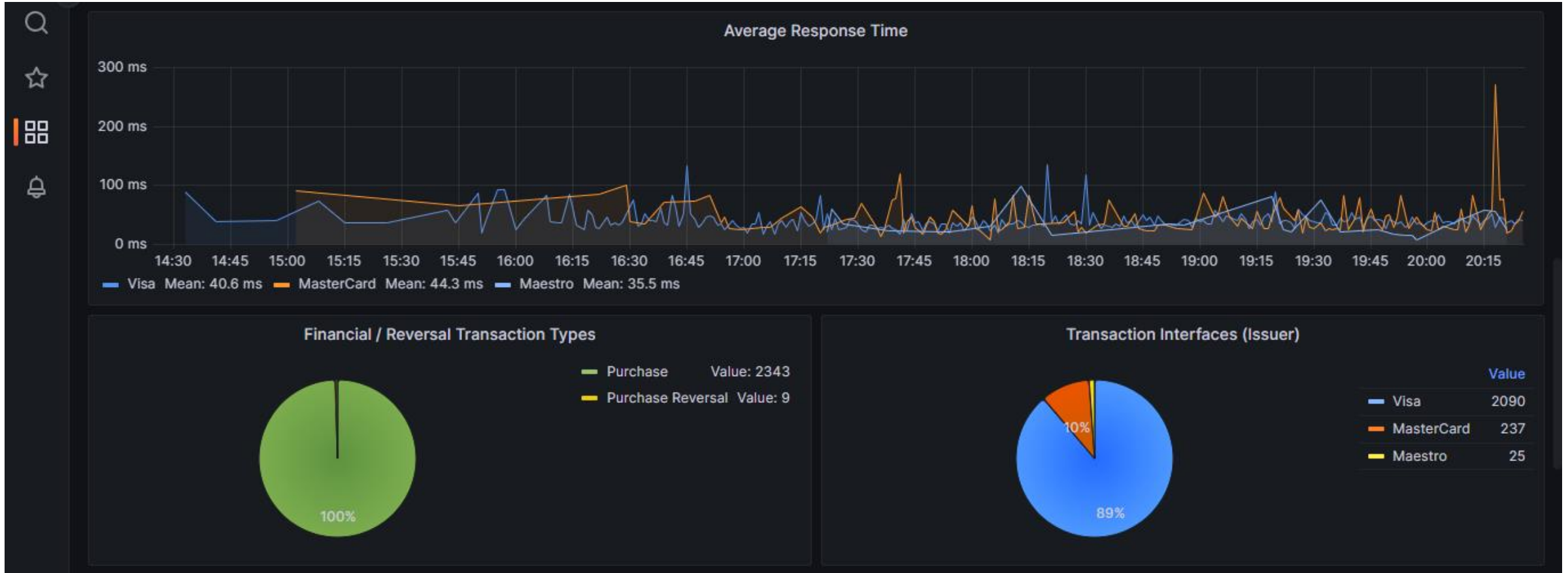
OmniSplunk screens



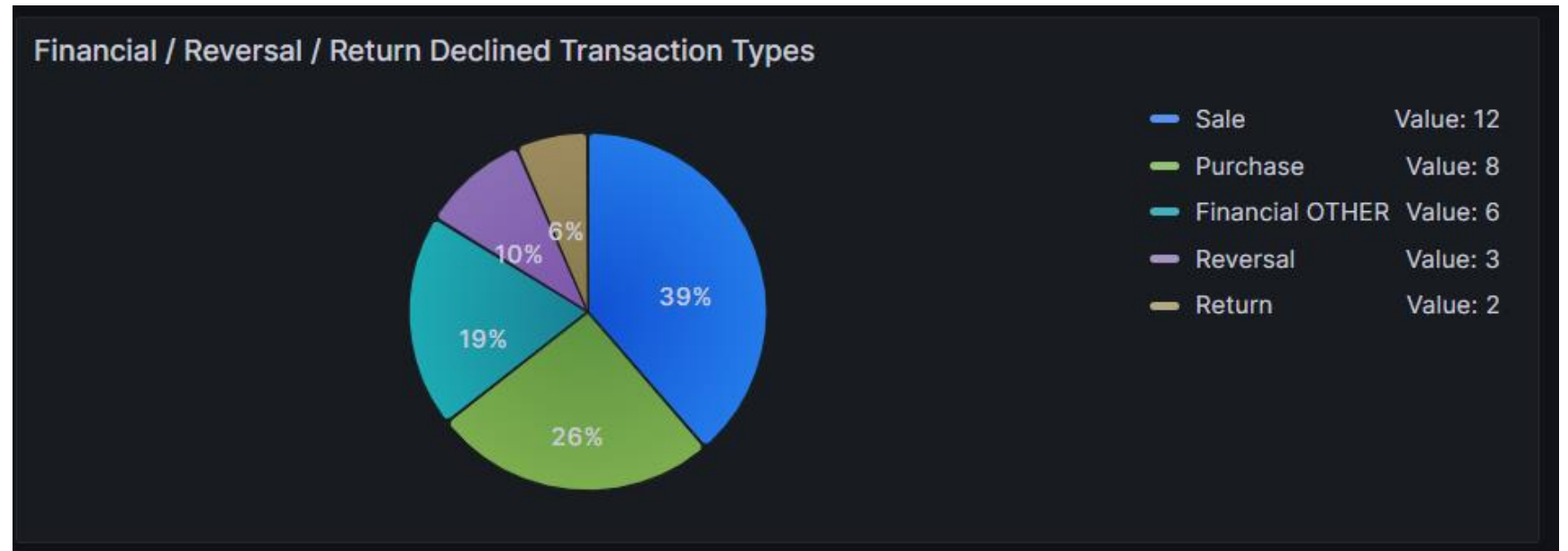
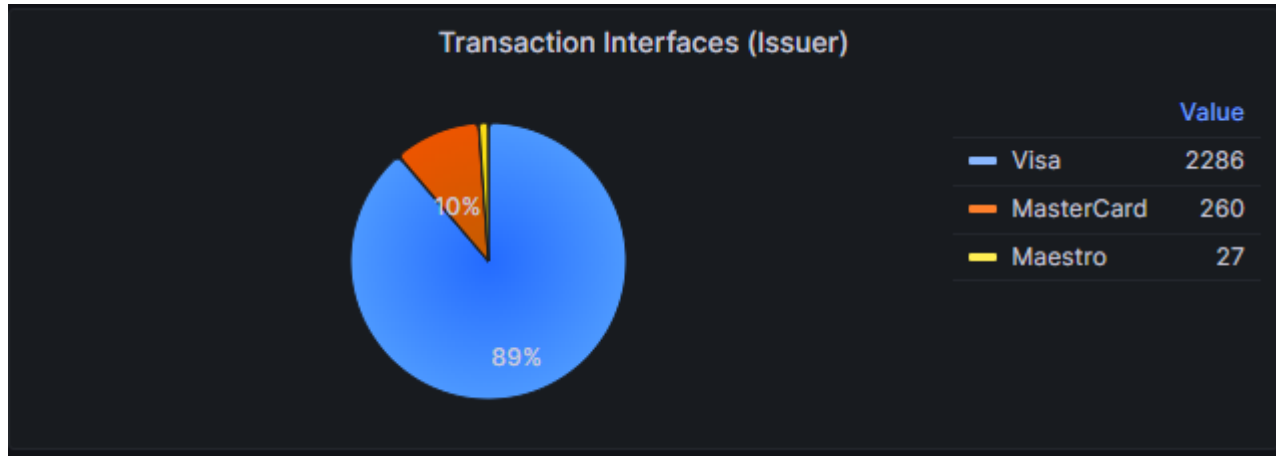
NonStop Transaction Log - Grafana



NonStop Transaction Response time - Grafana



Visa MasterCard, Transaction Distribution - Grafana



NonStop Events - Grafana

Select Events All ▾

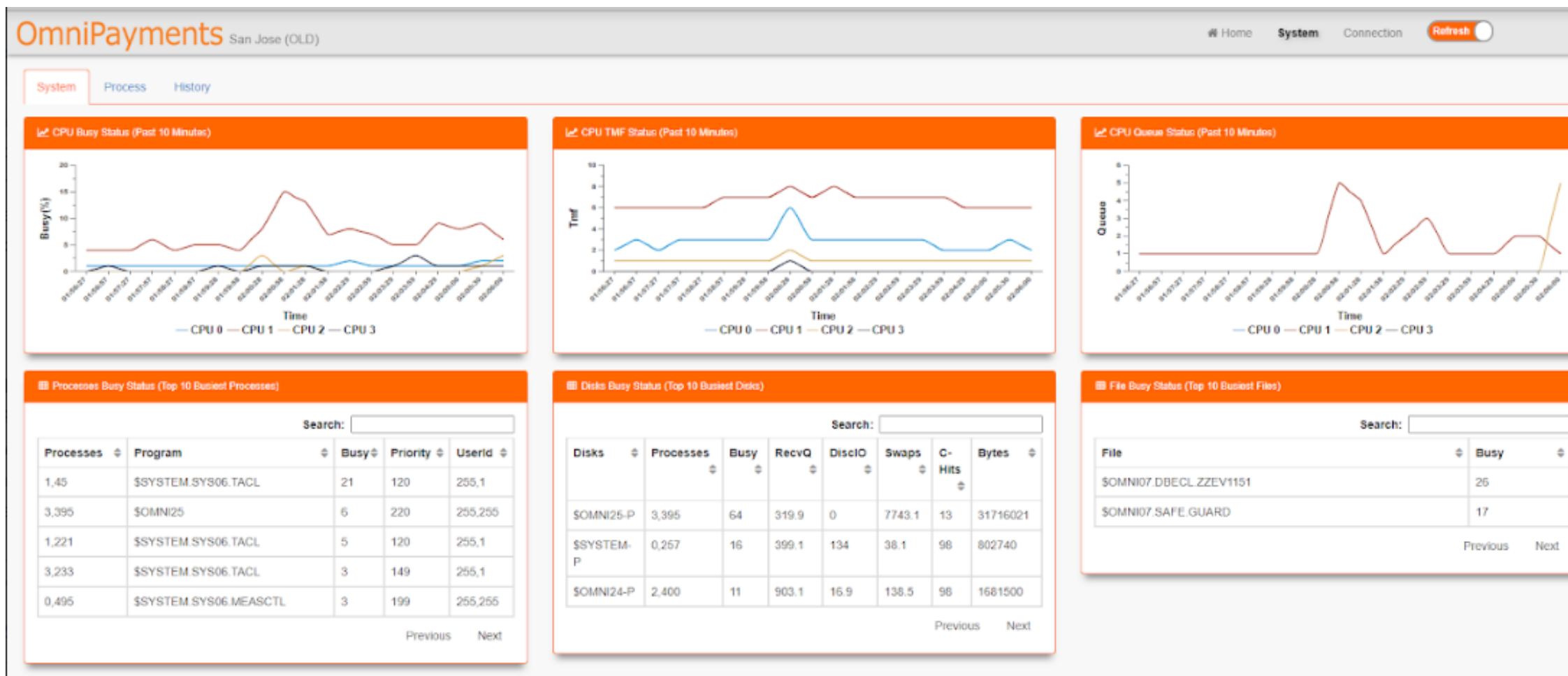
OP2_CA BACK

Events

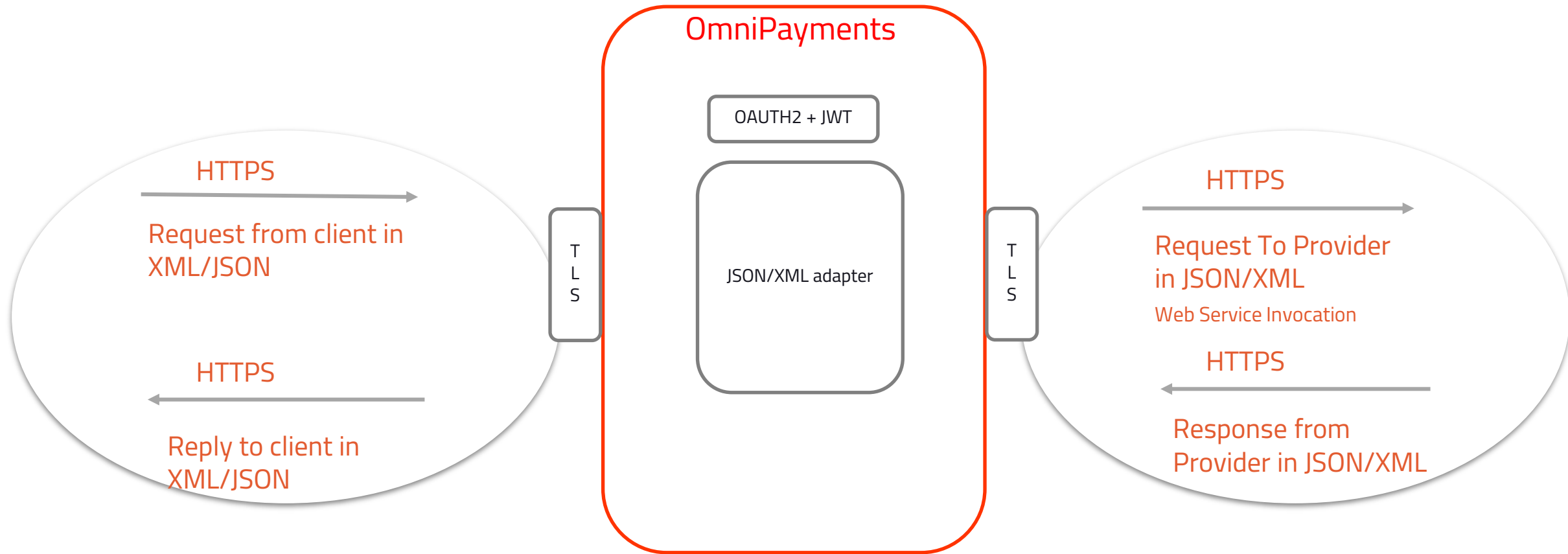
time ↓	Event Message
2023-10-16 21:54:00	23-10-16 20:40:02 \OMNI2.\$ERJC3 TANDEM.NSIM.G06 000215 Process CONSOLE ECOMNREPORTS, HIGH 404 : 0 : Missing SQLMX-OLDER-DAYS-BACKUP Param Pathmon: \OMNI2.\$EP...
2023-10-16 21:53:00	23-10-16 20:40:02 \OMNI2.\$ERJC2 TANDEM.NSIM.G06 000215 Process CONSOLE ECOMNREPORTS, HIGH 404 : 0 : Missing TXNTYPE ParamPathmon: \OMNI2.\$EPAPC
2023-10-16 21:52:00	23-10-16 20:40:02 \OMNI2.\$ERJC4 TANDEM.NSIM.G06 000215 Process CONSOLE ECOMNREPORTS, HIGH 404 : 0 : Missing LOG-SETTLE-MPOS-FIXED-LEN-RECORD Pathmon: \OMNI2....
2023-10-16 21:51:00	23-10-16 20:40:02 \OMNI2.\$ERJC3 TANDEM.NSIM.G06 000215 Process CONSOLE ECOMNREPORTS, HIGH 111 : Event Text Not Available/Configured. 532 : SAVEABEND-ON-OFF Pathmo...
2023-10-16 21:50:00	23-10-16 20:40:01 \OMNI2.\$EJGC2 TANDEM.NSIM.G06 000215 Process ECOMN-GWAYTD-A02, HIGH 0 : INFORMATIONAL MSG 0 : XTRA-HEADER-PARAM0 Param not found, Will Not Set...
2023-10-16 21:49:00	23-10-16 20:40:01 \OMNI2.\$JCAT2 TANDEM.NSIM.G06 000215 Process ECOMN-TD-A02, HIGH 111 : 1 : [CATALOG: EPH-OPDB, FEES-MEM] NOT Configured, defaulting to N Pathmon: \O...
2023-10-16 21:48:00	23-10-16 20:40:01 \OMNI2.\$JCAT1 TANDEM.NSIM.G06 000215 Process ECOMN-TD-A01, HIGH 111 : 1521 : PARAM-CACHE-INTERVAL not found Pathmon: \OMNI2.\$EPAPC

< 1 2 3 > 1 - 7 of 15 rows

Process Monitor

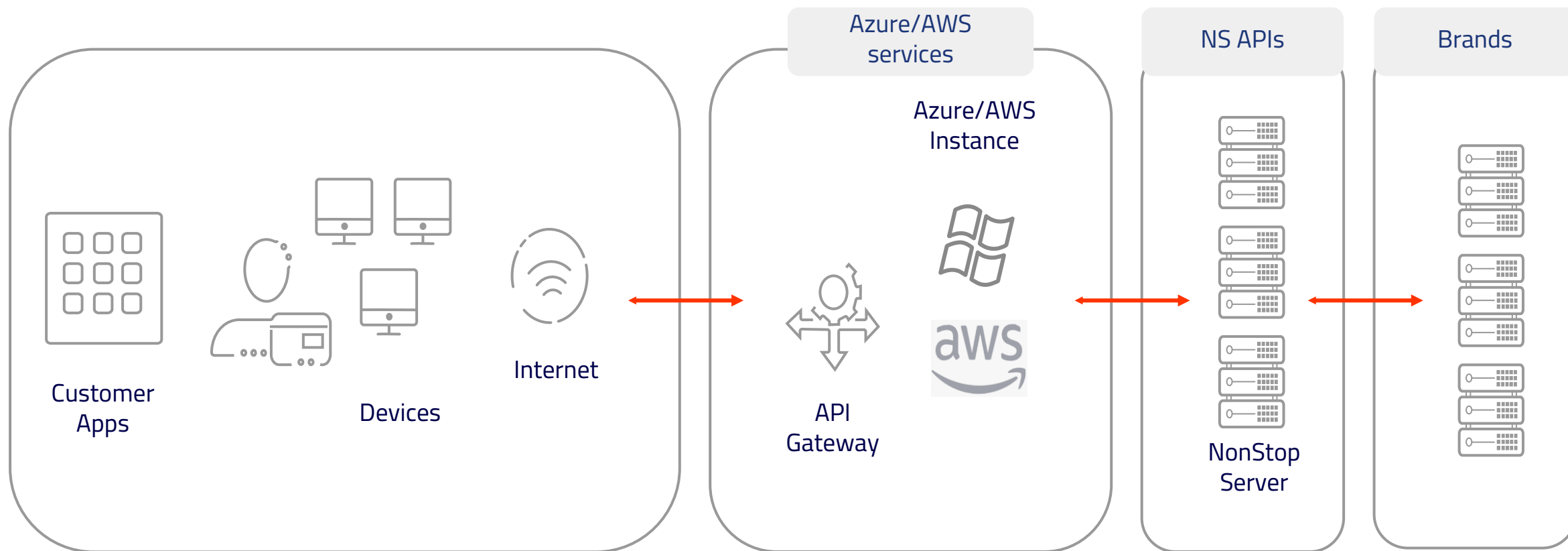


API Gateway – Micro services in JSON, XML

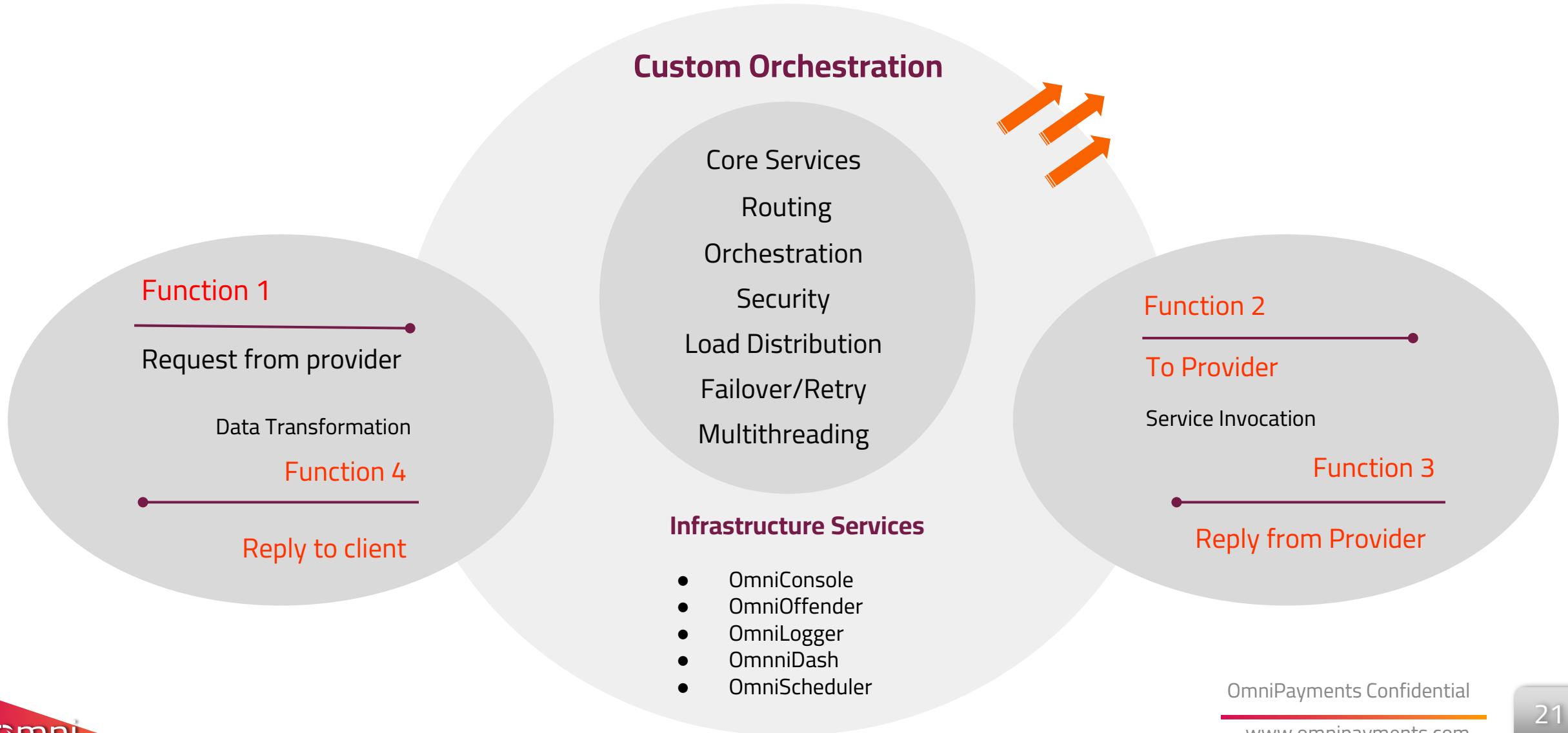


Public Cloud Integration – GCP, Azure, AWS

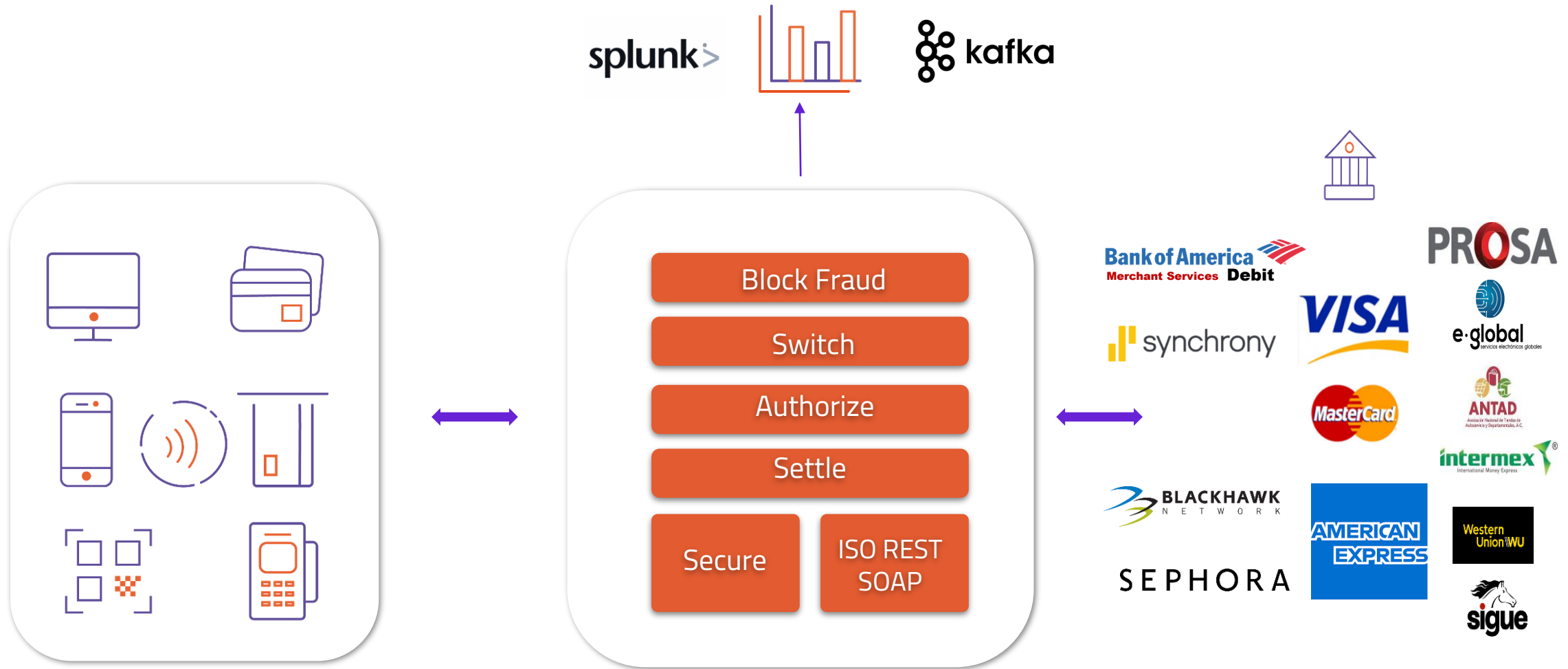
Adapters to send transactions from the Public Cloud and send data to the public cloud



HPE OmniDirector Architecture – API Gateway, CORBA, TUXEDO replacement



OmniPayments Architecture



OmniPayments Overview

Configurable

- The solution is configurable and features can be turned on in real time. More advanced rules can be programmed in the User Exits in Java, C++, COBOL and PTAL.

Message mapping

- Can maintain context between related message interchanges and can consolidate multiple responses into a single response to the transaction initiator.
 - All activities are logged.

Versatility

- Deployed on the HPE NonStop server and has adapters for Amazon AWS, Microsoft Azure, IBM MQ, Splunk, Oracle Tuxedo, HPE Pathway and CORBA.



Core Transactional Engine

Integrity

- Messaging framework on HPE NonStop servers.
- Provides core Services such as routing, data mapping and security.
- Supports ISO messages, JSON and XML message formats.

Real time

- Inputs from any customer touch point nurture in real time the isolated backend legacy systems.

Flexibility

- Can interface with legacy applications such as ACI BASE24 and FIS CONNEX.

OmniPayments Features



Intelligent Transaction Routing

- Efficient load balancing
- Intelligent Routing
- Exception Handling
- Connection Persistence



Growing to Handle Larger Volumes

- Isolates input and output components
- New input and output interfaces can be easily plugged-in
- New service providers can be added easily
- Configuration parameter based



Network errors and self healing

- Link failures are handled by routing the transaction to alternate path.
- Failed connections are taken out of the pool
- Connection retries are performed in the background.
- Once the connection is re-established it is brought back.

On Premise License model



Help us add modern JSON APIs and interfaces to back-end systems.

Help make our on-prem service more market-flexible.



Business Model: Reduce costs of Fat Client updates for customer access



Easy Integration: Replace Fat Client with a modern UI



No Code Changes: Work with existing applications written in COBOL and C



Quick development and deployment: Fast time to market



Cost-effective: Licence model

PAAS Cloud Model

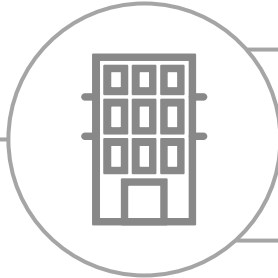


Help develop a scalable acquiring merchant network in a fast-paced market.

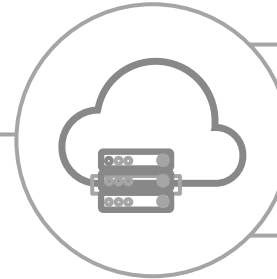
Get to market quickly,
Help manage transaction costs,
accommodate low in-house skills.

- **Business Model:** Help compete against market leader.
- **Quick development and deployment:** Fast time to market.
- **Cost-effective:** Decreasing transaction costs as volume increases
- **Increase the profitability of acquiring business:** solution adjusted to the 4-part acquirer model
- **Continuous technical support:** Large team of professionals with extensive experience in the payments industry

On Prem vs Cloud Model



OmniPayments
ON PREMISE

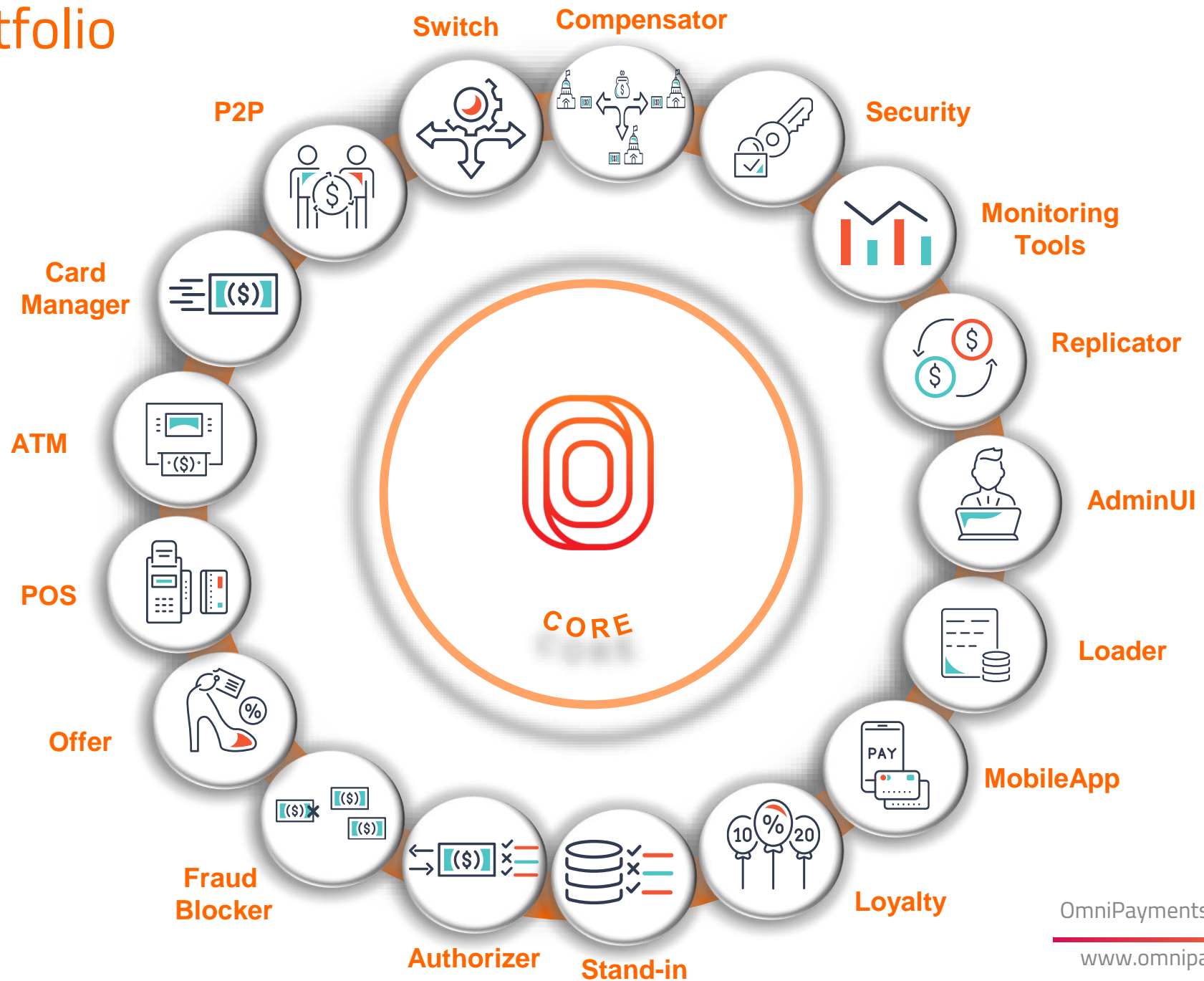


OmniCloudX
ON DEMAND

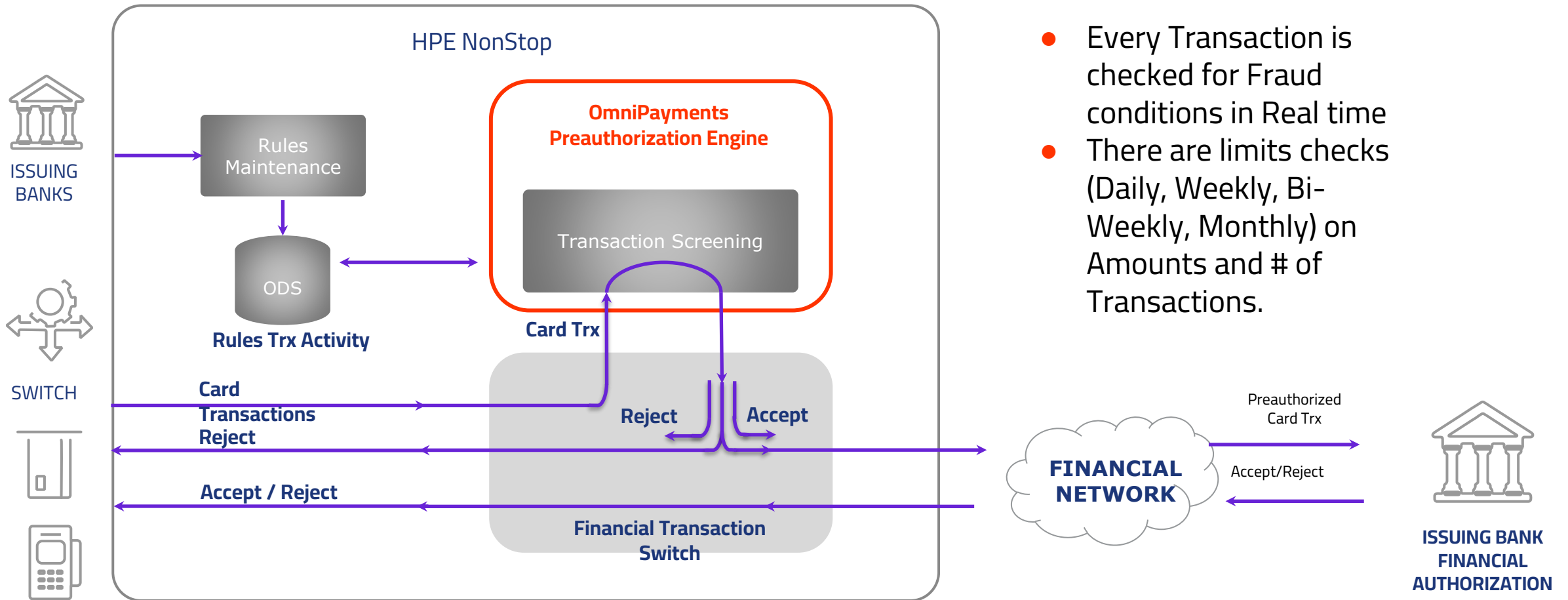


BancoEstado

Product Portfolio



OmniFraud Blocker



- Every Transaction is checked for Fraud conditions in Real time
- There are limits checks (Daily, Weekly, Bi-Weekly, Monthly) on Amounts and # of Transactions.

Modern and easy to manage, our Engine preauthorizes millions of transactions in **real time** and far more effectively than its complex, compute-intensive competitors.

OmniFraud Institution Rules

OmniPayments
OMNI USER INTERFACE
User : FBUSER123 | Switch : PULSE

Home
Dashboards
Operations
Configuration
Terminal
Card
Troubleshooting
Security
Reports
Fraud
Baseline
Payment Service Hub
Offers

Institution Management

TXN Source ATM POS Txn Profile Type ACQUIRER ISSUER

Define Supported Transactions

Transaction Profile Configuration

MsgID	Msg ID Desc	Proc Code	Proc Code Desc	From A/c Desc	To A/c Desc	Status	Min Amt	Max Amt
0200	Fin Request	000000	Normal Purchase	No A/c Specified	No A/c Specified	ACTIVE	1.00	2000.00

Amount Limit Add More Txns Manage Txns

Routing

Financial

Txn Source Message ID Prefix

Txn Code Account Type Retailer

Non Financial

Message ID Issuer/Acquirer

Restrict

Duplicate Txns Credit Card Access Mode

Manual Entry Mode Debit Card Entry Mode

Prefix Type of Card 3D Secure

Prefix Group Country Code MCC Group / MCC

Issuing FIID Postal Code

Restrict

Days

All S M T W T F S

Time Period (hh:mm:ss)

Start Time: 00:00:00 End Time: 00:00:00

Date Period (mm-dd-yyyy)

Start Date: End Date:

Retailer

Check Status Check Txn Profile

Terminal

Check Status Check Txn Profile Duplicate Txn

Not On Us Txns

Restrict All Type of Card

Credit Card MCC Group / MCC

Debit Card

Check

Expiry Date Fees Positive Cards

MultiCurrency Currency Exchange Negative Cards

Balance Limits

Set Rule Adv. Config. Review Changes

Visa Services | Visa Token

- New security feature offered by VISA
- Replaces sensitive card information (Primary Account Number PAN) with a 16 digit token
- A card will be provisioned a token for each merchant
- Tokens can be delivered for any brand (Visa, MasterCard, Amex, Discovery, etc)



OmniCloudX | Active-Active

Internal Formats

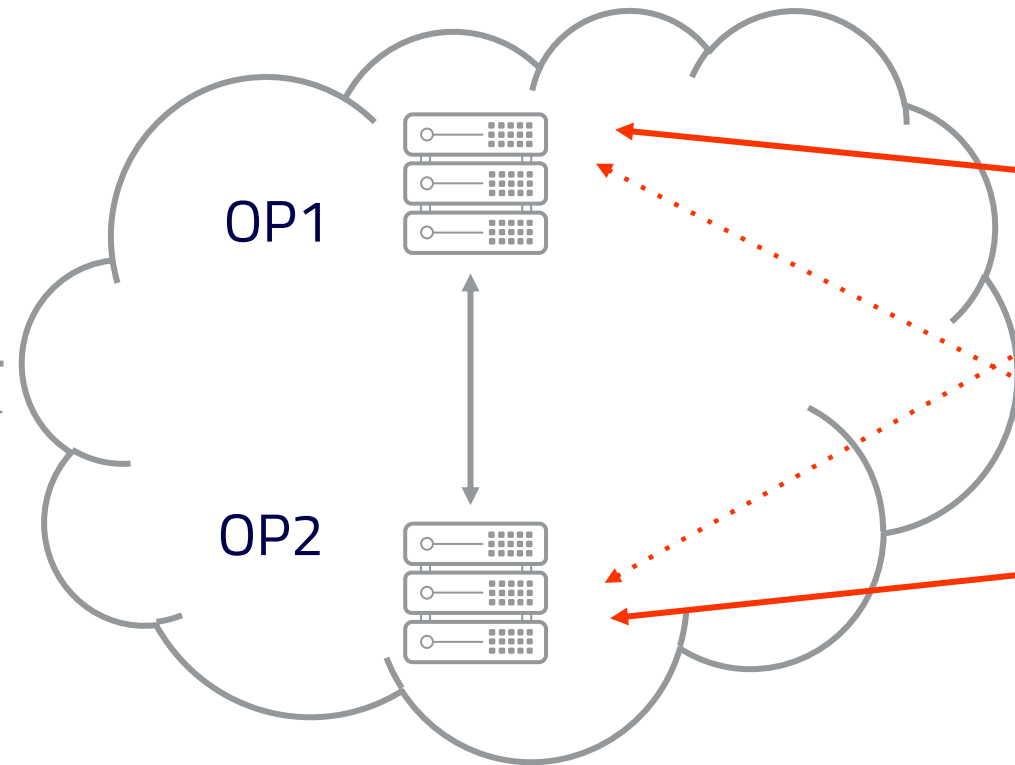


Processor Brand Formats

Devices



Processors



OmniCloudX

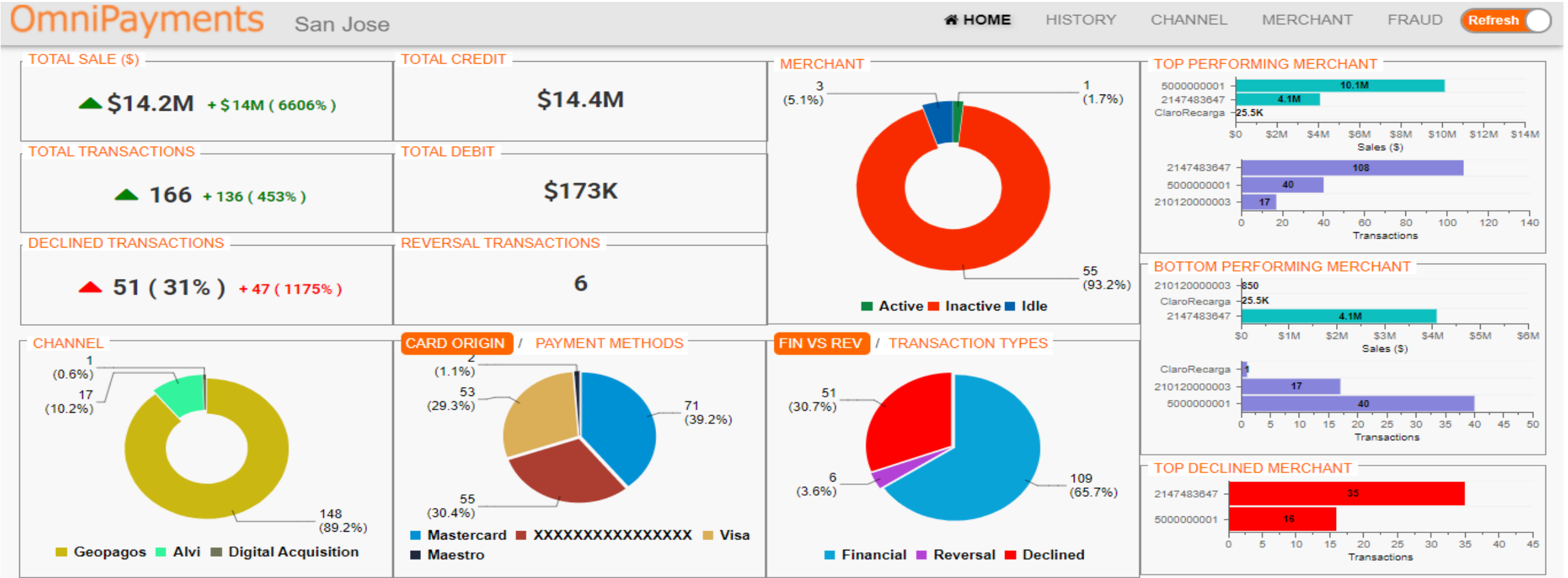


1



2

OmniDash – Business View

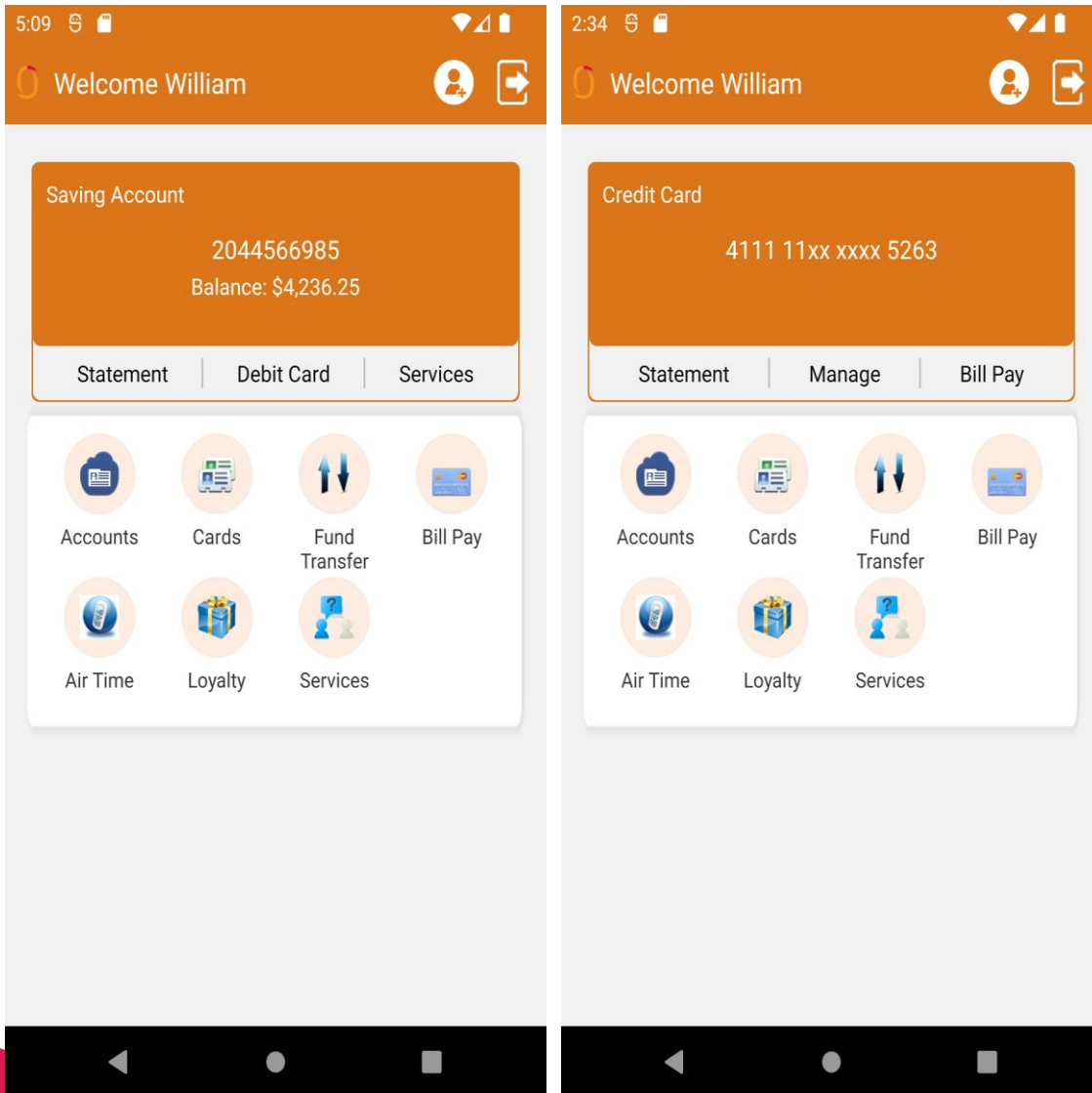


Real Time Transaction Monitor

JCPENNEY 4 Point Transactions

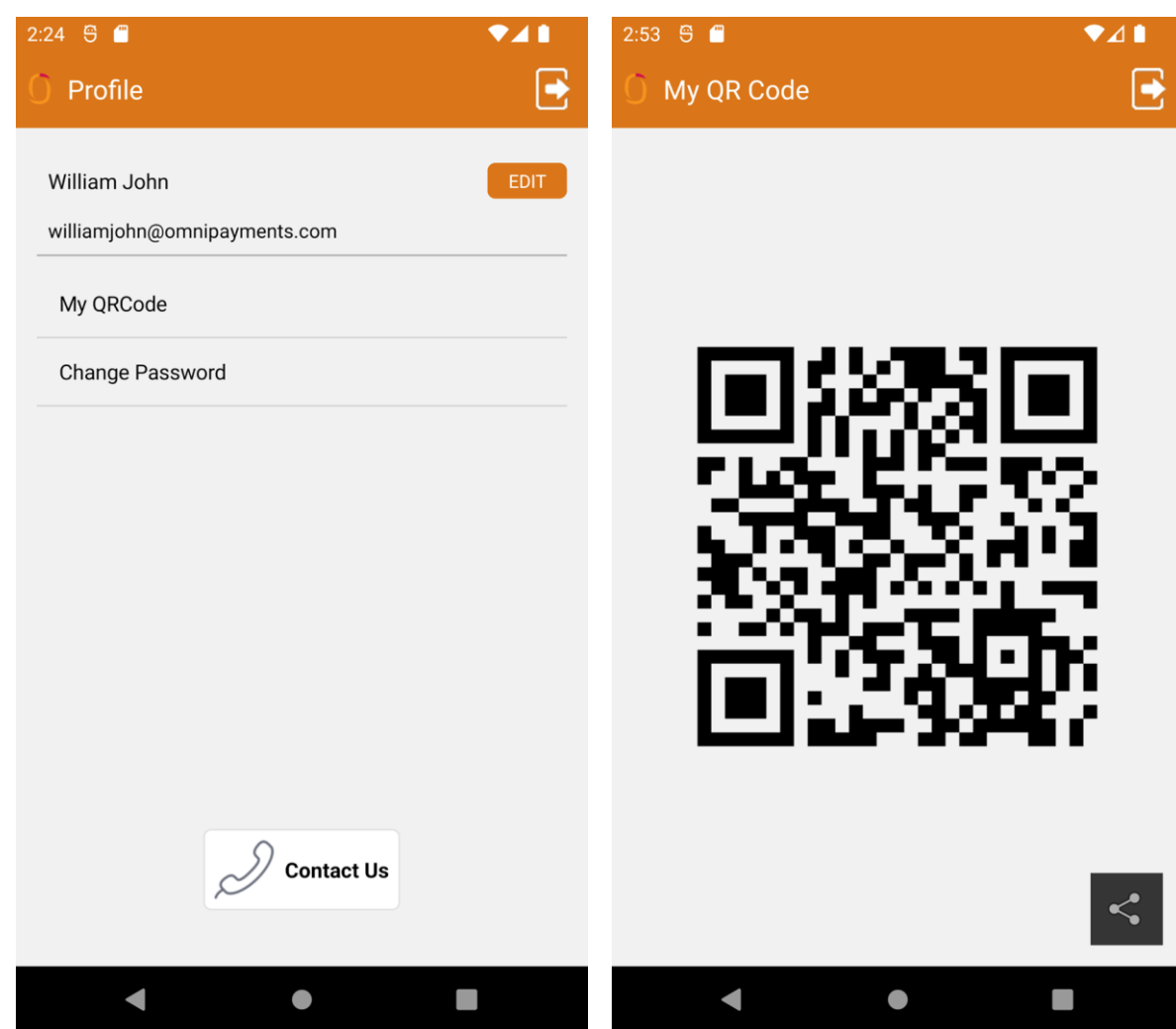
Select	Tran Type	Card Number	RRN	CCRN	Retailer ID	Msg Type	Proc Code	Log Src	Prov Name	LCode	Reply Code	Auth Resp Code	Amt	Log Time	Prov Resp(ms)	Total(ms)
<input type="radio"/>	ECOM	427533XXXXXX5675	412800000000	4000000005286459	00000	0400	000000	BAMTQ_SW	BAMTT11	√			11111.11	2017-11-06:15.01.30.385		0
<input type="radio"/>	ECOM	427533XXXXXX5675	412800000000	4000000005286459	00000	0410	000000	SW_BAMTQ	BAMTT11	√		00	11111.11	2017-11-06:15.01.30.400		15
<input type="radio"/>	ECOM	427533XXXXXX5675	637200000000	4000000005286459	00005	0400	000000	BAMTQ_SW	BAMTT11	√			11111.11	2017-11-06:15.01.30.488		0
<input type="radio"/>	ECOM	427533XXXXXX5675	637200000000	4000000005286459	00005	0410	000000	SW_BAMTQ	BAMTT11	√		00	11111.11	2017-11-06:15.01.30.493		5
<input type="radio"/>	ECOM	510027XXXXXX5519	100000070005	4000000004013485	04302	0100	000000	BAMTQ_SW	BAMTT11	√			.00	2017-11-06:15.08.20.312		0
<input type="radio"/>	ECOM	427533XXXXXX5675	100000030021	4000000005286459	04302	0100	000000	BAMTQ_SW	BAMTT12	√			.00	2017-11-06:15.08.21.607		0
<input type="radio"/>	ECOM	510027XXXXXX5519	100000070005	4000000004013485	04302	0110	000000	SW_BAMTQ	BAMTT12	√		00	.00	2017-11-06:15.08.21.704	1392	1392
<input type="radio"/>	ECOM	427533XXXXXX5675	100000030021	4000000005286459	04302	0110	000000	SW_BAMTQ	BAMTT11	X		37	.00	2017-11-06:15.08.23.051	1443	1443
<input type="radio"/>	ECOM	510027XXXXXX5519	100000030022	4000000004013485	04302	0100	000000	BAMTQ_SW	BAMTT11	√			47.62	2017-11-06:15.08.23.764		0
<input type="radio"/>	ECOM	427533XXXXXX5675	100000070006	4000000005286459	04302	0100	000000	BAMTQ_SW	BAMTT12	√			3621.00	2017-11-06:15.08.24.411		0
<input type="radio"/>	ECOM	427533XXXXXX5675	100000030023	4000000005286459	04302	0100	000000	BAMTQ_SW	BAMTT12	√			.00	2017-11-06:15.08.24.664		0
<input type="radio"/>	ECOM	510027XXXXXX5519	100000030022	4000000004013485	04302	0110	000000	SW_BAMTQ	BAMTT12	√		00	47.62	2017-11-06:15.08.25.077	1312	1313
<input type="radio"/>	ECOM	427533XXXXXX5675	100000070006	4000000005286459	04302	0110	000000	SW_BAMTQ	BAMTT11	√		00	3621.00	2017-11-06:15.08.25.926	1514	1515
<input type="radio"/>	ECOM	427533XXXXXX5675	100000030023	4000000005286459	04302	0110	000000	SW_BAMTQ	BAMTT12	X		37	.00	2017-11-06:15.08.26.181	1517	1517
<input type="radio"/>	ECOM	510027XXXXXX5519	100000070007	4000000004013485	04302	0100	000000	BAMTQ_SW	BAMTT12	√			.00	2017-11-06:15.08.26.523		0
<input type="radio"/>	ECOM	427533XXXXXX5675	100000070008	4000000005286459	04302	0100	000000	BAMTQ_SW	BAMTT11	√			28.60	2017-11-06:15.08.26.644		0
<input type="radio"/>	ECOM	510027XXXXXX5519	100000070007	4000000004013485	04302	0110	000000	SW_BAMTQ	BAMTT11	√		00	.00	2017-11-06:15.08.27.809	1285	1285
<input type="radio"/>	ECOM	427533XXXXXX5675	100000070008	4000000005286459	04302	0110	000000	SW_BAMTQ	BAMTT12	√		00	28.60	2017-11-06:15.08.28.060	1415	1415
<input type="radio"/>	ECOM	510027XXXXXX5519	100000030024	4000000004013485	04302	0100	000000	BAMTQ_SW	BAMTT12	√			47.62	2017-11-06:15.08.28.329		0
<input type="radio"/>	ECOM	510027XXXXXX5519	100000030024	4000000004013485	04302	0110	000000	SW_BAMTQ	BAMTT11	√		00	47.62	2017-11-06:15.08.29.627	1297	1297
<input type="radio"/>	ECOM	379157XXXXX3078	100000070009	400000000629774	04302	0100	000000	BAMTQ_SW	BAMTT11	√			.00	2017-11-06:15.08.30.739		0
<input type="radio"/>	ECOM	379157XXXXX3078	100000070009	400000000629774	04302	0110	000000	SW_BAMTQ	BAMTT12	X		37	.00	2017-11-06:15.08.32.199	1459	1459

OmniMobile App



- Accounts – Credit, Debit, Gift cards.
- Pay your friends
- Bills and recurring payments

Pay using QR codes



OmniWallet uses QR codes for payments



Do You Want To Know More?



www.omnipayments.com



Yash@omnipayments.com



www.linkedin.com/company/omnipayments