



**Hewlett Packard
Enterprise**

DataEdge for HPE NonStop - Streaming Analytics & Monitoring for Financial Transactions



Manpreet Singh, Chief Product Officer (ESQ)

May 16, 2023

HPE Confidential Information

This document contains HPE Confidential Information.

If you have a valid Confidential Disclosure Agreement with HPE, disclosure of the roadmap is subject to that CDA. If not, it is subject to the following terms: for a period of 3 years after the date of disclosure, you may use the Roadmap solely for the purpose of evaluating purchase decisions from HPE and use a reasonable standard of care to prevent disclosures. You will not disclose the contents of the Roadmap to any third party unless it becomes publicly known, rightfully received by you from a third party without duty of confidentiality or disclosed with HPE's prior written approval.



Agenda

- Product Overview
- Marketing IDs and Ordering Example
- Q & A



Product Overview



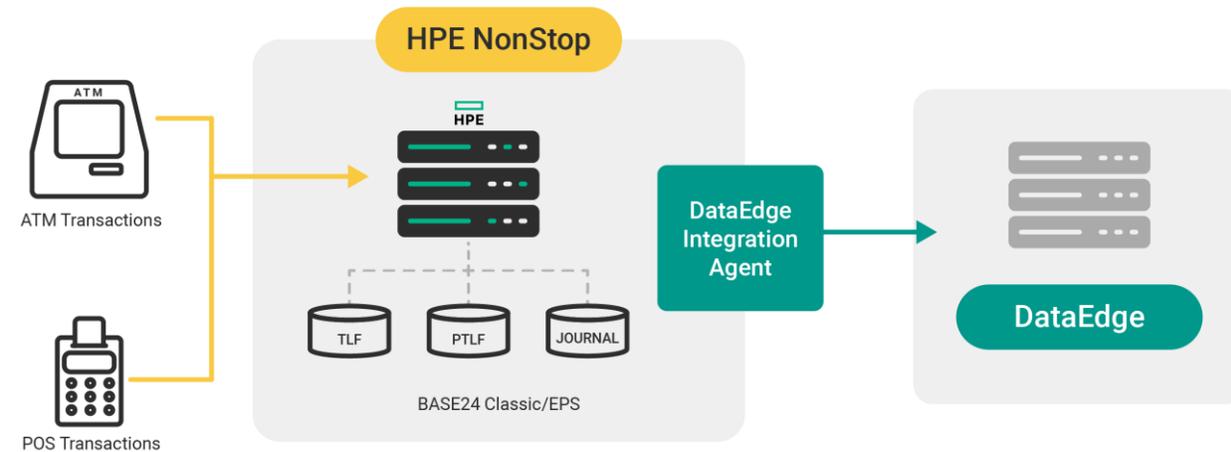
DataEdge for HPE NonStop

- Data Integration and Streaming Analytics platform
 - Ingest, clean, enrich a variety of data
 - Perform analytics
 - Provide operational business intelligence to make real time decisions
- Support for ingestion of disparate data streams with Statistics calculations at high volumes, velocity and variety
- Modern service-oriented architecture
- Responsive User Interface with focus on mobility and different UI form factors
- Packages for ATM and POS financial transactions applications that run on the HPE NonStop (ACI BASE24 Classic/EPS, FIS Connex, etc.)
- APIs for integration



Real Time Streaming & Enrichment of Data

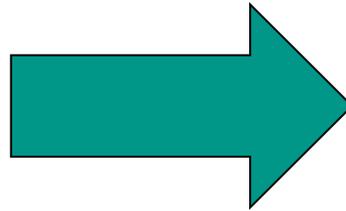
- DataEdge ETL layer streams host transaction logs in real-time from the HPE NonStop platform to the DataEdge platform (Wintel server)
- Delivery in correct sequential order of every record with exactly-once processing (E1P)
- Data enriched with reference data for entities coming from other sources
 - Add location data like Latitude/Longitude
 - Additional Merchant Data like Names, Addresses, Store Location, Terminal
- Support for recovery in case of network outages
- Support for Active-Active mode



Why choose DataEdge?

Before

- Infrastructure supporting a business environment is complex and diverse leading to increasing number of supporting services
- Transactions & business events are produced from different sources and data is not fully utilized
- Data silos exist
- Legacy architecture, tough to scale

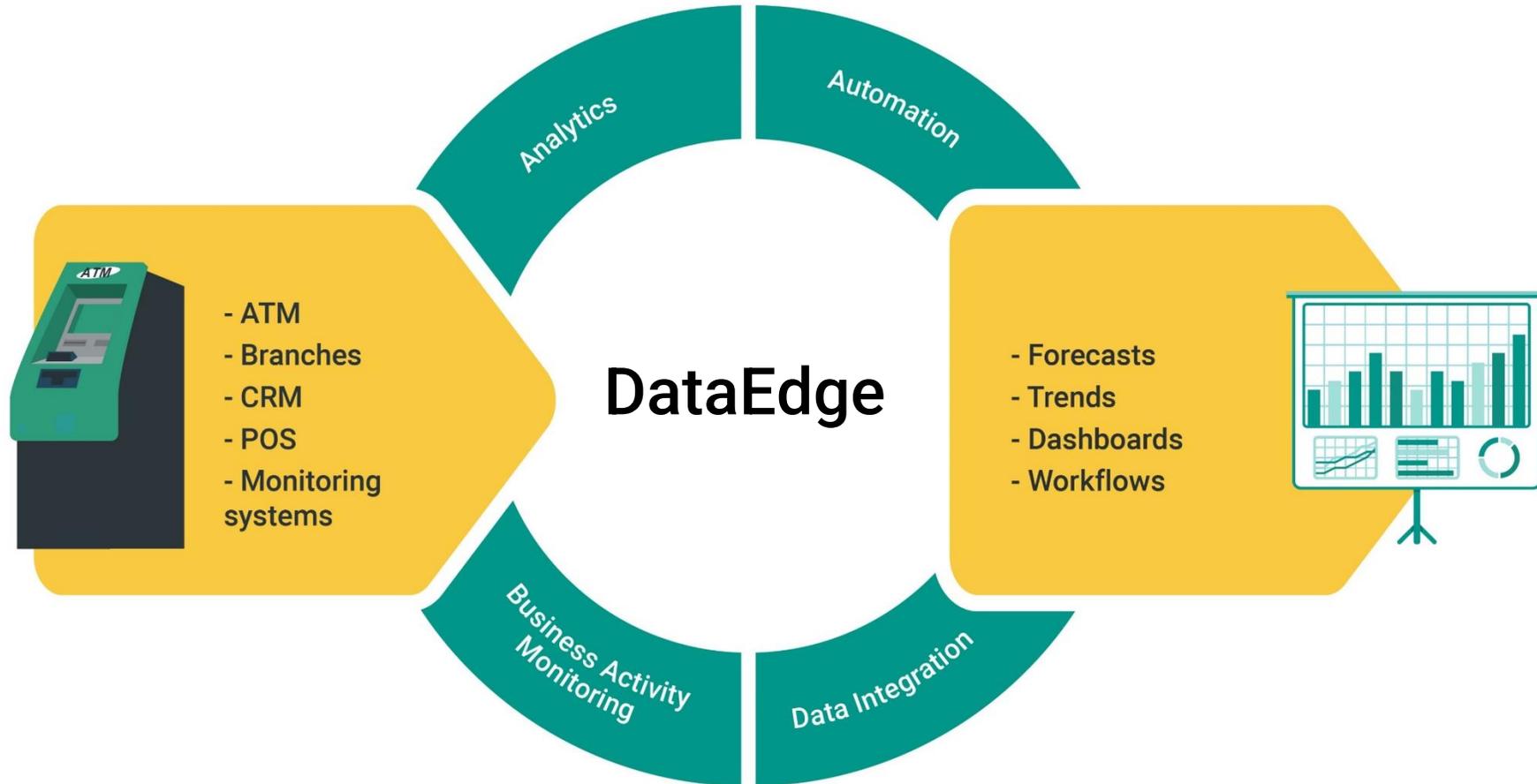


After

- One platform for centralized monitoring and management of different transaction sources
- Transaction and business events are streamlined, data received is cleansed, normalized and ingested
- Mitigation of data silos and increased team collaboration. Integration via APIs
- Modern flexible and scalable architecture to support Big Data, Machine Learning



Product Overview

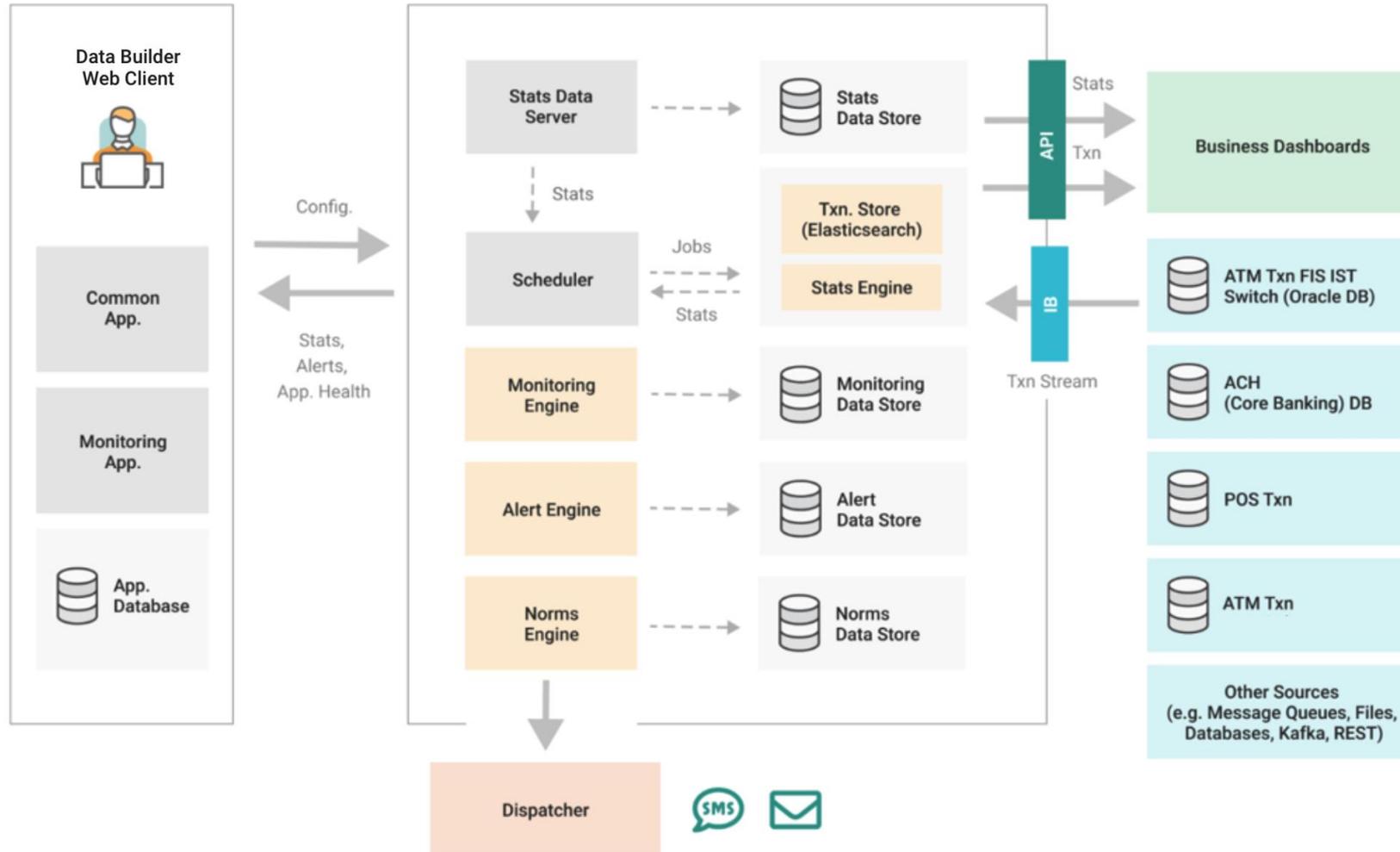


Business KPIs (Base24 application on HPE NonStop)



- Number and percentage of transactions by various entities (Acquirer, Issuer, Network, Retailer)
- Number and percentage of approved/denied transactions
- Number and percentage of timeout transactions
- Response time of transactions
- Interchange response time
- TPS
- Transaction Type Analysis
- Response Code Analysis
- Trends – today vs. yesterday/last week/last month

Architecture



Data Builder – Flexible Configuration

New Metric ✕

Name of Metric: Entity Type Name:

Description:

Type of Metric: Choose Source Column:

Track norms for this metric

Apply Filters (Optional)

A	<input style="border: none; border-bottom: 1px solid #ccc;" type="text" value="reversalReason"/>	<input style="border: none; border-bottom: 1px solid #ccc;" type="text" value="is not equal to"/>	<input style="border: none; border-bottom: 1px solid #ccc;" type="text" value="4021"/>	<input type="button" value="⊖"/>
B	<input style="border: none; border-bottom: 1px solid #ccc;" type="text" value="transCode"/>	<input style="border: none; border-bottom: 1px solid #ccc;" type="text" value="is not one of"/>	<input style="border: none; border-bottom: 1px solid #ccc;" type="text" value="1420,1421,1430,1440"/>	<input type="button" value="⊖"/>
C	<input style="border: none; border-bottom: 1px solid #ccc;" type="text" value="interChangeResponseTi"/>	<input style="border: none; border-bottom: 1px solid #ccc;" type="text" value="is greater than"/>	<input style="border: none; border-bottom: 1px solid #ccc;" type="text" value="0"/>	<input type="button" value="⊖"/>

[+ Add Filter Condition](#)

Filter Logic:

[Show Preview](#)

- Centralized user interface to easily configure metrics, formulas, entities, data sources*, and connections*
- Intuitive and user-friendly area that requires minimal technical skills and imposes quick data builds
- Save time by replicating, altering, and even deactivating metrics or entities directly in the user interface
 - Predefined metrics offered out-of-the-box
 - Define custom metrics for different entities
 - Improve operational efficiency by cloning and editing user-defined custom metrics

Previews – Examine before Saving

Metric History ✕

Entity Type: POSTXN CardType Metric Name: Total Transactions

Aggregation: 1 Hour Intervals: 60 recent Intervals

Metric Display: By Date

Instance Name: ✕ Mastercard ✕ Mastercard Debit ✕ VISA ✕ VISA Debit

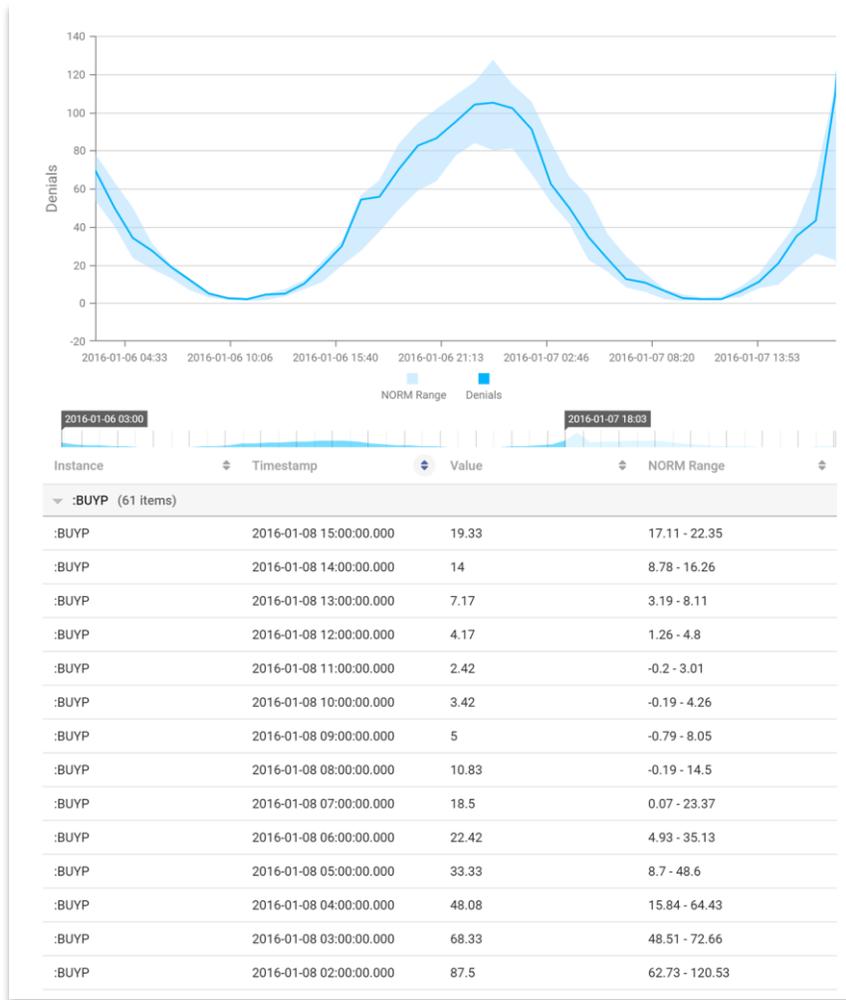
Range Using: Standard deviation

Preview

Instance	Timestamp	Value
▶ Mastercard (61 items)		
▶ Mastercard Debit (61 items)		
▶ VISA (61 items)		
▶ VISA Debit (61 items)		



Anomaly Detection enabled by ML



- Norms are metric normal values based on a set of profiles
- Out-of-the-box norms profiles are based on day of the week and hour of the day to capture cyclic patterns
- Choose metrics to track under norms profiles
- Norms are updated daily to include fresh data in the model
- Anomalous values for a metric can be monitored, detected, and alerted on for percentage or absolute deviations from the norm

Monitoring via Alert Policies

1 Create sophisticated threshold conditions

2 Craft custom alert messages

3 Distribute alert messages to individuals or groups

Edit Alert Policy

Policy Definition | **Alert Content** | Alert Distribution

Use an existing alert content template

Template Category: Default Templates | Template Name: Threshold Monitoring Policy Alerts

Enter content manually

Template Options

Break from Template

Alert Subject: {alert.type} | {policy.severity}: {policy.name} for {event.instance.name}

Alert Body: Hello {user.name},
You are receiving this email because an alert has been generated from the following policy: {policy.name}

Policy Type: {policy.type}
Severity: {policy.severity}
Resource Name: {alert.resource.name}

Alert Summary (Optional): {alert.type} | {policy.severity}: {policy.name} for {event.instance.name}

Cancel | Save

Hello John,

You are receiving this email because an alert has been generated from the following policy: Monitor total transactions per hour for seq_entity vs norms for high or low volume by percentage

Policy Type: Threshold Monitoring
Severity: Warning
Resource Name: Seq Entity
Event Time: Feb 12, 2020 23:00:00 PM
Time Since Alert Is Active: 1 hour(s)

Alert Conditions

Entity Instance Name: :100

A Metric: Total
Threshold: Metric value is lower than norm by 30 %
Last recorded value at Feb 12, 2020 23:00:00 PM: **81.0**
Norm value: 60.25

B Metric: Total
Threshold: Metric value is greater than norm by 30 %
Last recorded value at Feb 12, 2020 23:00:00 PM: **81.0**
Norm value: 60.25

Policy is in violation when ANY of the conditions are met.

Control Data Retention & Aggregation

Data Maintenance

Data maintenance is available only for data sources with at least one active entity type.

Data Source	Data Connection	Primary/Live Process	Secondary/Repair Process	Length of Data Being Retained
NonStop CPU	NonStop Performance Data	Currently at 02/18/2020 11:3...	Currently at 02/18/2020 11:2...	2 Minute(s)
DataEdge Stats DB Table Siz...	DataEdge Other Performanc...	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	1 Minute(s)
DataEdge Database File Late...	DataEdge Performance KPIs	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	1 Minute(s)
DataEdge System CPU	DataEdge Performance KPIs	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	1 Minute(s)
DataEdge System Memory	DataEdge Performance KPIs	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	1 Minute(s)
ATM Transactions BASE24	ATM Transactions BASE24	Currently at 07/14/2010 09:4...	Currently at 07/14/2010 09:3...	
DataEdge CPU By SQL DB	DataEdge Performance KPIs	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	
DataEdge SQL Buffer Pool U...	DataEdge Performance KPIs	Currently at 02/18/2020 18:5...	Currently at 02/18/2020 18:4...	
DataEdge System Volumes	DataEdge Performance KPIs	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	
DataEdge Volume Test FPS...	DataEdge Performance KPIs	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	
DataEdge Volume Test Insta...	DataEdge Performance KPIs	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	
DataEdge Volume Test Stats ...	DataEdge Performance KPIs	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	
PM Data Tables Space Utiliz...	DataEdge Performance KPIs	Currently at 02/18/2020 19:2...	Currently at 02/18/2020 19:2...	

Data Retention

You can set a data retention period for each available interval.

Interval Type	Interval Name	Data Retention Period
Stats Interval	1 min	Indefinite
Aggregation Interval	5 min	Indefinite
Aggregation Interval	15 min	Indefinite
Aggregation Interval	1 hour	Indefinite
Aggregation Interval	1 day	Indefinite
Aggregation Interval	1 week	Indefinite
Aggregation Interval	1 month	Indefinite
Aggregation Interval	1 year	Indefinite

Secondary/Repair Process

Data Source: NonStop CPU

You can restart secondary/repair process from anytime before: 02/13/2020 15:16:00

Repair From: 02/13/2020 15:14:00

February 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
1	2	3	4	5	6	7

15 : 14 : 00

Cancel Save

- Control the data repair process
- Rebuild data at any time with improved on-demand repair capabilities
- Configure aggregation intervals for each entity type
- Manage the retention requirements for your data in the user interface

Powerful Search Engine

- With Elasticsearch support (optional) for extended raw data storage

ATM Transactions BASE24 2003-11-03 19:37:00 - 2020-11-05 19:42:23 (termLN contains PRO1) Save Filter

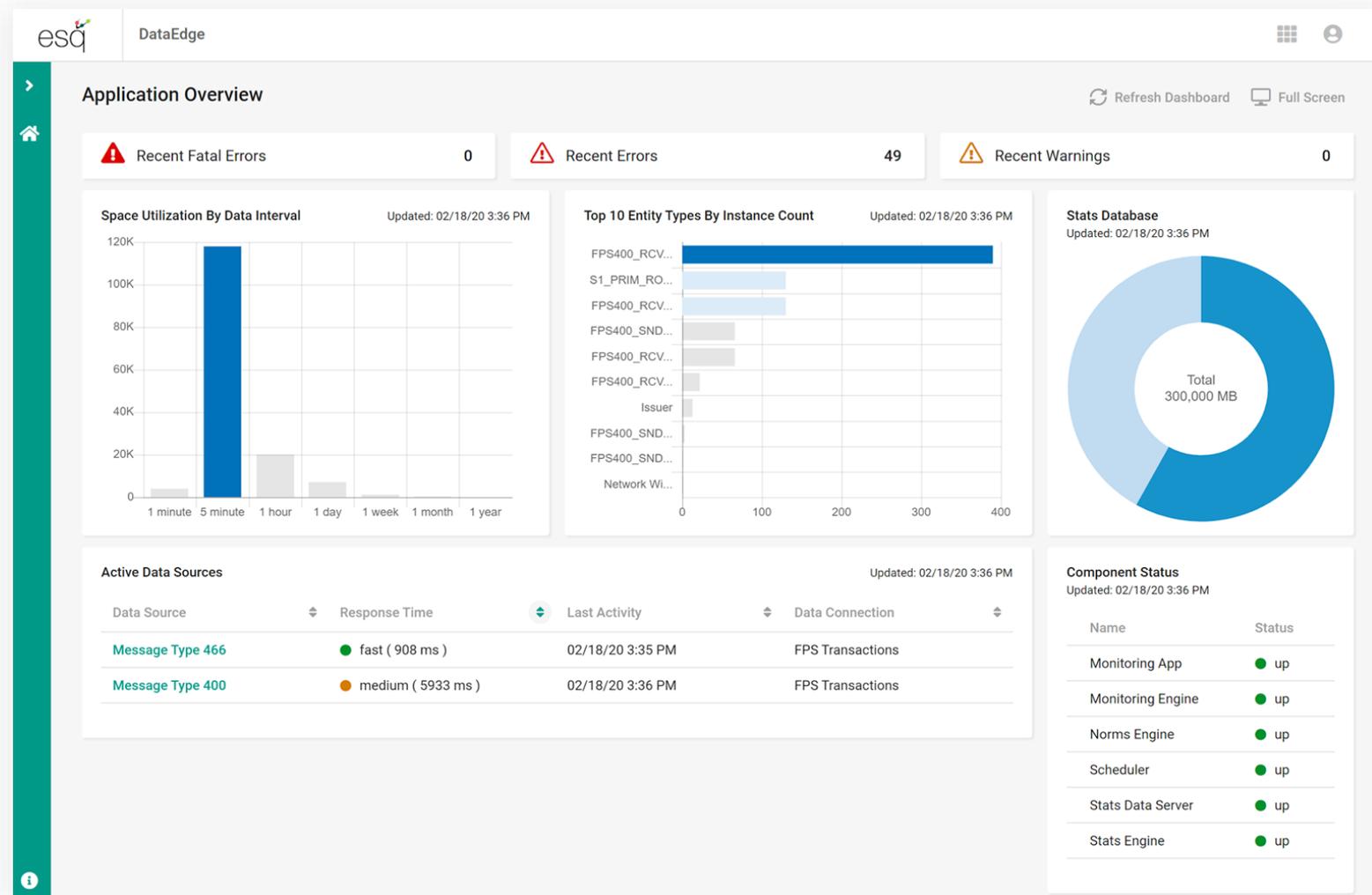
100+ Result(s) ⓘ

Application Id	termFIID	termLN	termID	OrigTransDate...	acquirerTermC...	PINOffset	acquirerTerm
DR3	M002	PRO1	S1AP130H	21214582560025...	BANDUNG		ID
SM	M002	PRO1	S1AS13BA	21214582560063...	CIKAMPEK	0000000000000000	ID
SM	M002	PRO1	S1AS13BA	21214582560076...	CIKAMPEK	0000000000000000	ID
SM	M002	PRO1	S1AS13BA	21214582560076...	CIKAMPEK	0000000000000000	ID
DR3	M009	PRO1	S1AM134D	21214582560041...	CIREBON		ID
TMB	M002	PRO1	S1AP12ET	21214582560027...	BEKASI	0000000000000000	ID
TMB	M002	PRO1	S1AP12ET	21214582560041...	BEKASI	0000000000000000	ID
DR3	M00B	PRO1	S1AD0J6Z	21214582560048...	JAKARTA		ID
DR3	M002	PRO1	S1AM10I1	21214582560050...	BATAM		ID
DR3	M009	PRO1	S1AD1D0A	21214582560054...	SURABAYA		ID
DR3	M002	PRO1	S1AP00FA	21214582560048...	JAKARTA		ID
DR3	M00B	PRO1	S1AD1E7E	21214582560048...	BOGOR		ID
DR3	M00B	PRO1	S1AD1C3I	21214582560075...	SUKABUMI		ID
DR3	M009	PRO1	S1AP108U	21214582560084...	PEKANBARU		ID
DR3	M002	PRO1	S1ADA25Y	21214582560060...	JAKARTA		ID



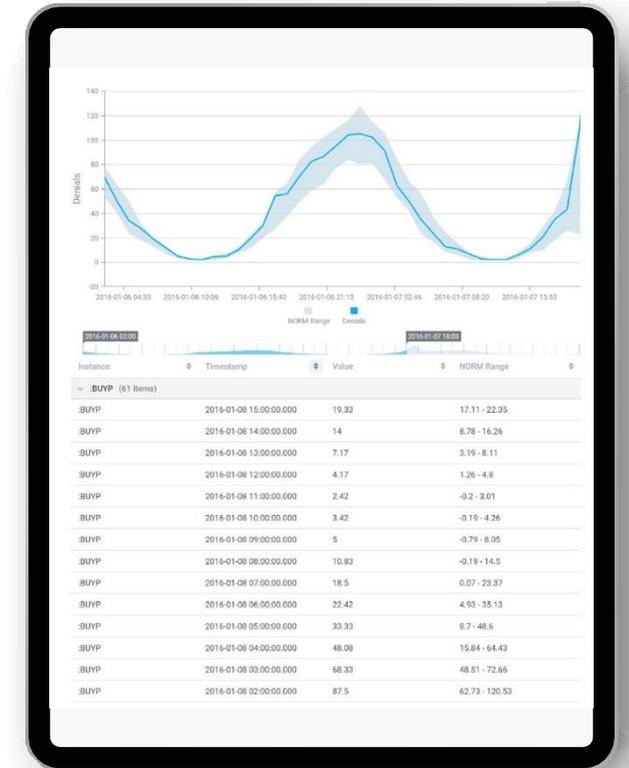
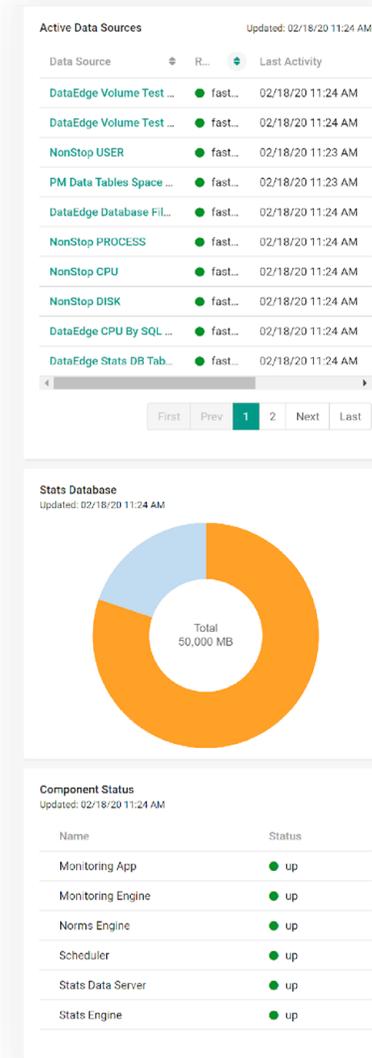
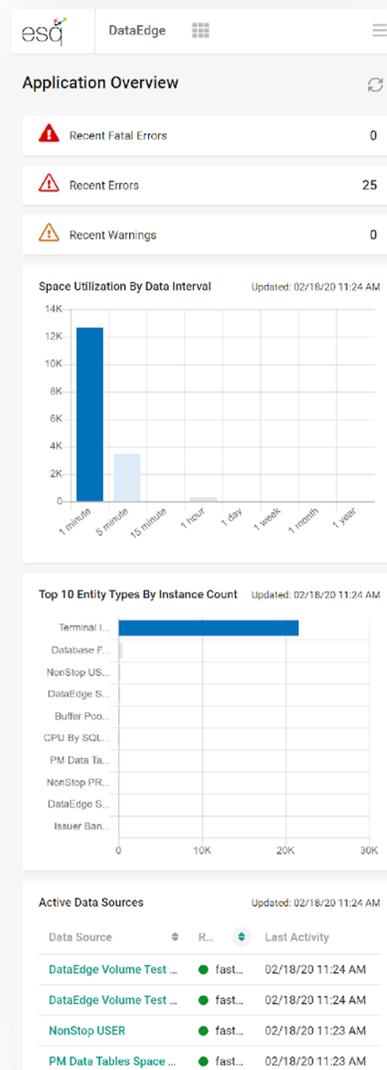
Application Health Monitoring

- Troubleshooting & diagnostics made easy



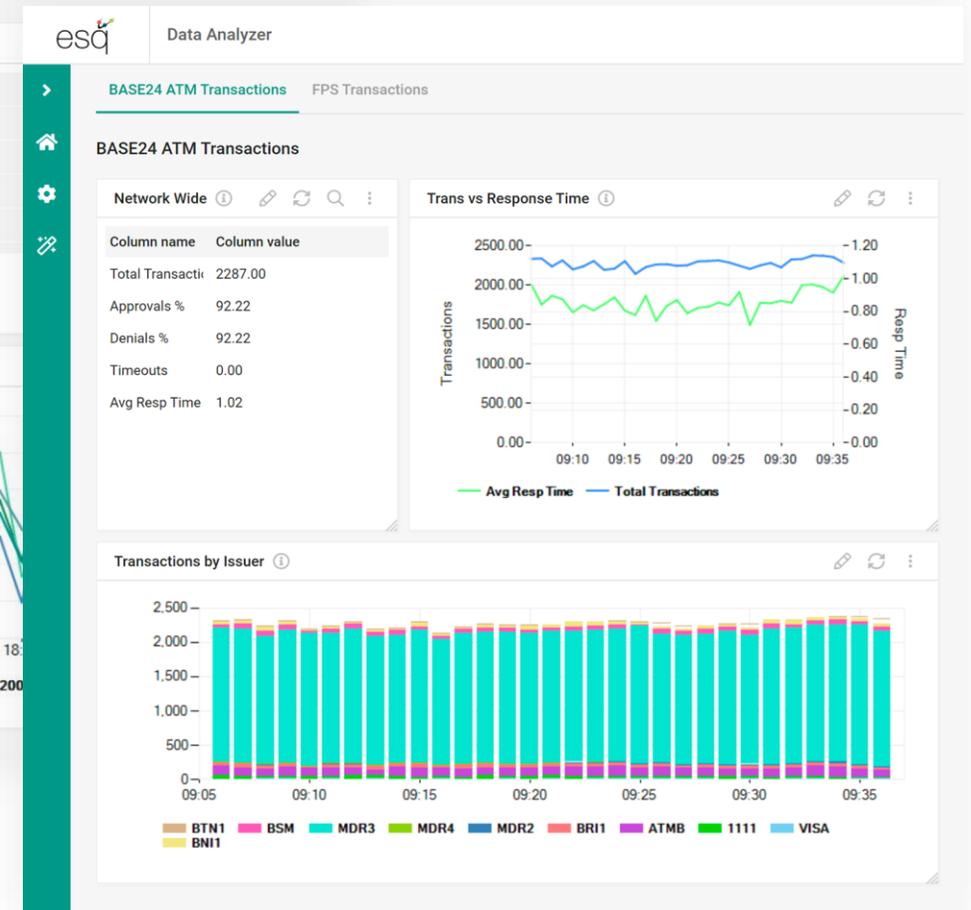
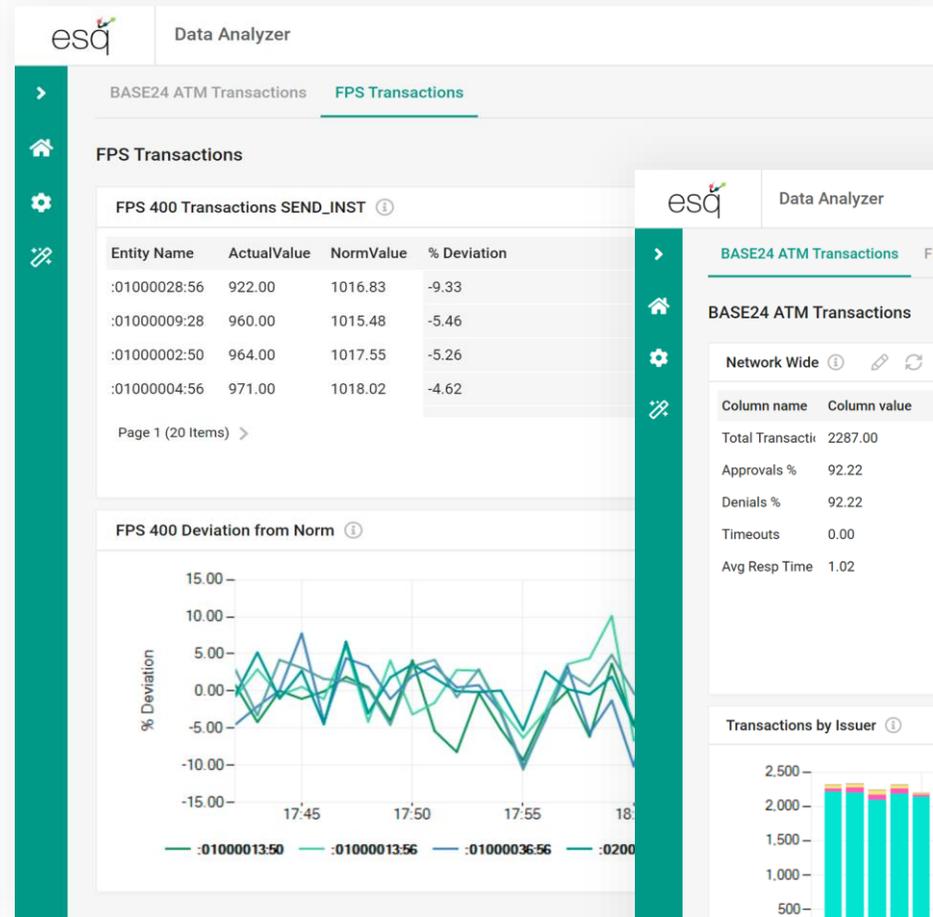
Responsive Layouts

- View data on mobile devices



Data Analyzer

- Purpose built for DataEdge
- Hundreds of chart types and widgets
- Highly flexible configuration
- Replay data
- Visual thresholds
- Adapts to mobile devices



Deliver Stats via API

```
» All Data - API2 NEW Comments (0) Examples (0)  
  
POST Send Save  
https://reno-svr24-vm1:28447/stats-data-server/statsdataserver/stats/data/1  
  
Params Authorization Headers (9) Body Pre-request Script Tests Settings Cookies  
  
 none  form-data  x-www-form-urlencoded  raw  binary  GraphQL BETA  JSON Beau  
  
1- {  
2  "dataLevel": "hour",  
3- "timeRange": {  
4  "dateRange": { "dateFormat": "yyyy-MM-dd HH:mm:ss.SSS", "timeStart": "2019-11-24 00:00:00.000", "timeEnd": "2019-11-24 23:00:00.000",  
5    "timeStartOperand": ">=", "timeEndOperand": "<" }  
6  },  
7  "instanceFilterByID": [  
8    "149372",  
9    "149374",  
10   "149378"  
11  ],  
12  "requestedElements": [  
13    { "id": "TIME.STATSTIME" },  
14    { "id": "INSTANCE.ID" },  
15    { "id": "INSTANCE.NAME" },  
16    { "id": "METRIC.NAME", "metricId": "1" },  
17    { "id": "METRIC.VALUE", "metricId": "1" },  
18    { "id": "METRIC.TOTAL", "metricId": "1" },  
19    { "id": "METRIC.COUNT", "metricId": "1" },  
20    { "id": "METRIC.ISWITHINNORM", "metricId": "1" },  
21    { "id": "NORM.VALUE", "metricId": "1" },  
22    { "id": "NORM.MIN", "metricId": "1" },  
23    { "id": "NORM.MAX", "metricId": "1" },  
24    { "id": "NORM.STDDEV", "metricId": "1" },  
25    { "id": "NORM.SAMPLES", "metricId": "1" },  
26    { "id": "METRIC.NAME", "metricId": "2" },  
27    { "id": "METRIC.VALUE", "metricId": "2" },  
28    { "id": "METRIC.NAME", "metricId": "3" },  
29    { "id": "METRIC.VALUE", "metricId": "3" },  
30    { "id": "METRIC.TOTAL", "metricId": "3" }  
31  ],  
32  "page": { "page": 1, "page_size": 10 }  
}
```

Sample response:

```
{ "page": { "pageSize": 10, "page": 1, "totalAvailablePages": 7, "maxPageSizeAllowed": 2000 },  
  "totalRecordsFound": 69,  
  "dataRows": [  
    [  
      1574661600000,  
      149374,  
      ":B161",  
      "Response Time",  
      67.69997626394493,  
      285220.0,  
      4213,  
      67.699974,  
      67.699974,  
      67.699974,  
      0.0,  
      1,  
      "Response Time",  
      4213.0  
    ],  
    [  
      1574661600000,  
      149378,  
      ".BOT" ]  
  ]
```

Search Transactions API

```

POST https://reno-svr24-vm1:28444/search

Body
  none
  form-data
  x-www-form-urlencoded
  raw
  binary
  GraphQL
  JSON

39  },
40  "namedFilter": null,
41  "startDate": "2009-08-01 16:09:00",
42  "endDate": "2020-08-13 16:14:33",
43  "datesFormat": null,
44  "select": null,
45  "sortBy": null,
46  "excludeDataSourceFilter": true,
47  "page": 1,
48  "pageSize": 10
49  }
  
```

```

Body Cookies Headers (4) Test Results

Pretty Raw Preview Visualize JSON

3  "data": [
4  {
5    "RECEIVING_MEMBER": "02000017",
6    "PROC_CODE": "301010",
7    "LOGGED_BY": "101006",
8    "DATA_OFFSET": "4",
9    "CURRENCY_CODE": "826",
10   "SUBMITTING_MEMBER": "01000002",
11   "TRANSACTION_IN_TIME": "2020-07-15 21:04:01.490",
12   "TRANS_DATA": "",
13   "USAGE": "06",
14   "TRAN_ID": "X118",
15   "LOG_FILE": "SOATVS2.VOCADATA.LOG003",
16   "SEQ_NUM": "3107646138",
17   "TRAN_TIME": "09:41:29",
18   "NODE": "Svr31",
19   "MESSAGE_TYPE": "9200",
20   "MSG_CODE": "466",
21   "STEP": "0",
22   "TRANSACTION_IN_TIME_UTC": "2020-07-16 01:04:01.457",
23   "TransactionTime": "2020-07-15 18:04:01.457",
24   "USER_FLD1": "01",
25   "..."
  }
  
```

GET https://reno-svr24-vm1:28444/search/drilldown?startDate=2020-07-16 02:31&endDate=2020-07-16 02:32&entityTypeName=FPS400_RCV_PL_TRAN_TYPE&metricName=APPR...

Params Authorization Headers (8) Body Pre-request Script Tests Settings

Query Params

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> startDate	2020-07-16 02:31	
<input checked="" type="checkbox"/> endDate	2020-07-16 02:32	
<input checked="" type="checkbox"/> entityTypeName	FPS400_RCV_PL_TRAN_TYPE	
<input checked="" type="checkbox"/> metricName	APPR_TRAN_CNT	
<input checked="" type="checkbox"/> startOffset0		
<input checked="" type="checkbox"/> size	10	
Key	Value	Description

```

Body Cookies Headers (4) Test Results Status: 200 OK Time: 1892 ms

Pretty Raw Preview Visualize JSON

3  "data": [
4  {
5    "S1_ACQR_INST_ID_RTRIM": "01000004",
6    "S1_CUR_TRAN": "826",
7    "S1_ACQR_PROCESS_ID": "SND402",
8    "DATA_OFFSET": "4",
9    "S1_PRIM_ROUTE_PROC_ID": "RCVA09",
10   "S1_ISSR_INST_ID_RTRIM": "01000036",
11   "TRANSACTION_IN_TIME": "2020-07-15 22:31:00.060",
12   "S1_LOCAL_TRANSTIME": "2015-12-23 11:35:59.000",
13   "S1_ISSR_INST_ID": "01000036",
14   "S1_ACQR_RPT_INST": "01000009",
15   "NODE": "Svr31-1",
16   "S1_FUNC_CODE": "200",
17   "S2_TSAP_ID": "TS007009",
18   "S1_m01": "2015-12-23 19:35:59.040",
19   "S1_m00": "2020-07-17 17:39:02.060",
20   "S1_m03": "2015-12-23 19:35:59.180",
21   "S1_m02": "2015-12-23 19:35:59.170",
22   "S1_m05": "1974-12-31 08:00:00.000",
23   "S1_PRIM_ROUTE_PROCESS_ID": "SVR009",
24   "S1_m04": "2015-12-23 19:35:59.180",
  }
  
```



Differentiators from Legacy TA products

- TA products entering End of Life – DataEdge is the replacement product
- Modern Technology and Architecture
 - Built on latest technology - Java, Kafka, ElasticSearch, Spark
 - Secure & Compliant
 - Modern Service Oriented Architecture (On-Premise or Cloud)
- New Features
 - Anomaly Detection - Norms based Thresholds, ML Enabled
 - Self-Serve Administration - Create Data Sources, Entities, Metrics from the UI
 - Flexible configuration – Custom Metrics, Configurable Aggregation, Data Retention, Scheduling
 - Responsive User Interface with focus on mobility and different UI form factors
 - APIs
- Scalability and performance
 - Support for any number of entities as system scales horizontally



Marketing IDs and Ordering Example



Marketing IDs

DataEdge Core software products

Product description	Marketing IDs	T-number	Ordering guidelines
DataEdge Core software	BE033AW, QDECORE	T1801	Order one per environment
DataEdge license to analyze and monitor ATM transaction data with DataEdge Core running on a Windows server	BE096AL, QDECATM	N/A	Order one LTU per a Windows server configured with up to 32 cores
DataEdge license to analyze and monitor POS transaction data with DataEdge Core running on a Windows server	BE097AL, QDECPOS	N/A	Order one LTU per a Windows server configured with up to 32 cores

DataEdge Integration and Analytics products

Product description	Marketing IDs	T-number	Ordering guidelines
DataEdge ATM Integration and Analytics module – Stream ATM transaction data from HPE NonStop	BE034AC, QDEIAATM	T1802	Per NonStop CPU
DataEdge POS Integration and Analytics module – Stream POS transaction data from HPE NonStop	BE035AC, QDEIAPOS	T1803	Per NonStop CPU
DataEdge ATM and POS Integration and Analytics modules – Stream ATM & POS transaction data from HPE NonStop	BE036AC, QDEIAPA	T1802 and T1803	Per NonStop CPU

Services

- PS-CS: Installation and Configuration service is **required** for DataEdge

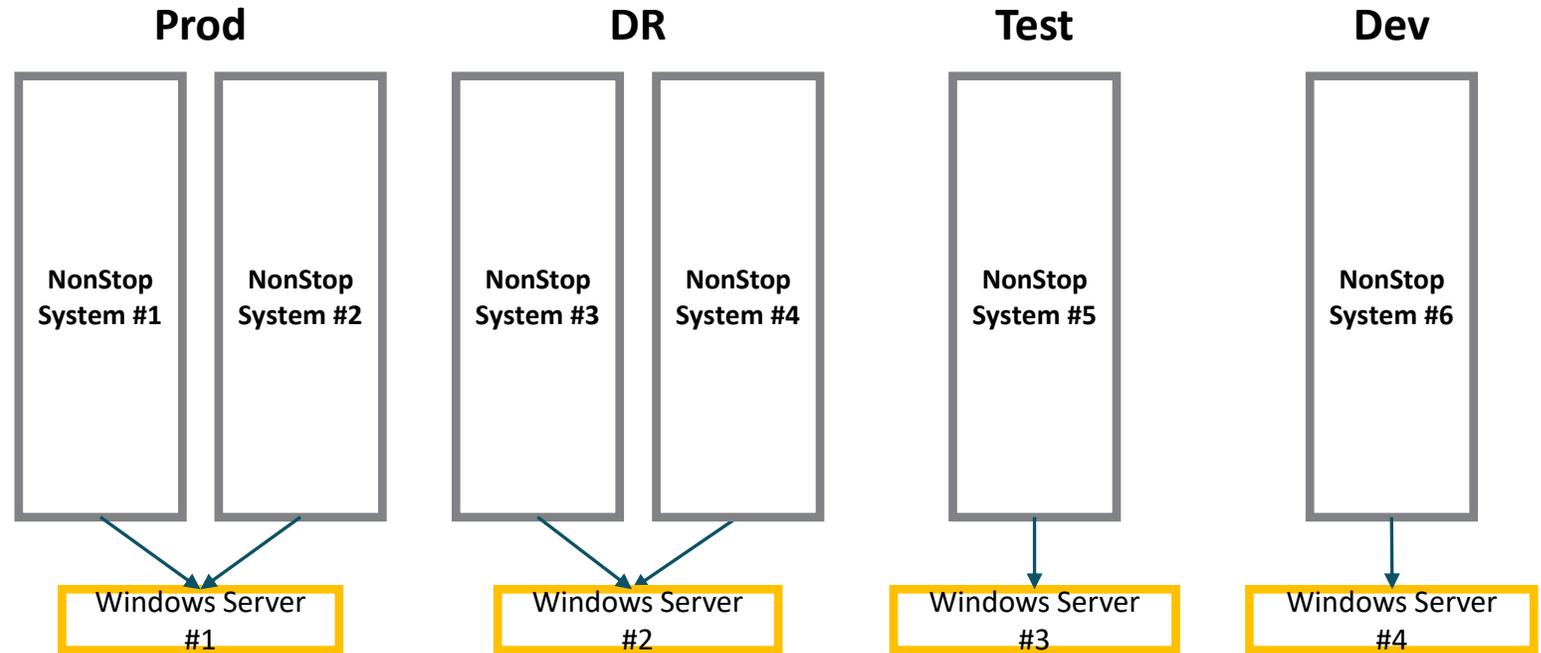


Ordering Example

Customer configuration

Environment	System Id	System Config
Production	System #1	2x 4P NS8
	System #2	2x 4P NS8
DR	System #3	2x 4P NS8
	System #4	2x 4P NS8
Test	System #5	4P NS8
Development	System #6	2P NS4

Customer wants to monitor their ATM environment



Hardware and Software Requirements

Database Server

- Minimum 64 GB of RAM
- 3 GHz, 16 core
- Minimum disk space 1 TB, SSD
- Windows Server 2019 64-bit or above
- MS SQL Server 2019 or later
- Microsoft ODBC Driver 11

Application Server

- Minimum 64 GB of RAM
- 3 GHz, 16 Core
- Minimum disk space 100 GB
- Windows Server 2019 64-bit or above
- JRE 1.8 with the latest updates
- Microsoft ODBC Driver 11 or above
- Microsoft SQL Server Native Client for SQL 2019 or above
- Microsoft .NET Framework 4.0 (64-bit) and 4.6.2 (64-bit)
- IIS 10.0 or later

Web Server

- Minimum 32 GB of RAM
- 3 GHz, 16 core
- Minimum disk space 100 GB
- Windows Server 2019 64-bit or above
- JRE 1.8 with latest updates
- Microsoft .NET Framework 4.0 (64-bit) and 4.6.2 (64-bit)
- IIS 10.0 or later



Q&A
Thank you

