Scars from the Battlefield

Azure Integration

About Me

Hardest integration project

- Experience
  - 10+ years Financial
  - 10+ years Resources (Oil & Gas, Mining, Facilities)

- 20 years Solution and Enterprise Architect
  - 15+ years Integration Architecture

- Microsoft CSP Partner

- Global Azure Advisor

Today

- Solution Overview

- Azure Integration Overview

- The Technical Bits
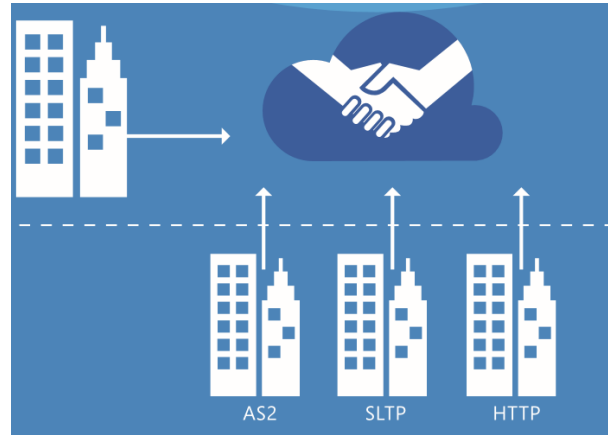
- The Challenging Bits

Azure Integration – Solution Overview

- EAI Capability
- Service Bus
- API Connectors
- Logic Apps
- Workflow Definition Language
- API Apps and API Management

Application Landscape

B2B

SaaS
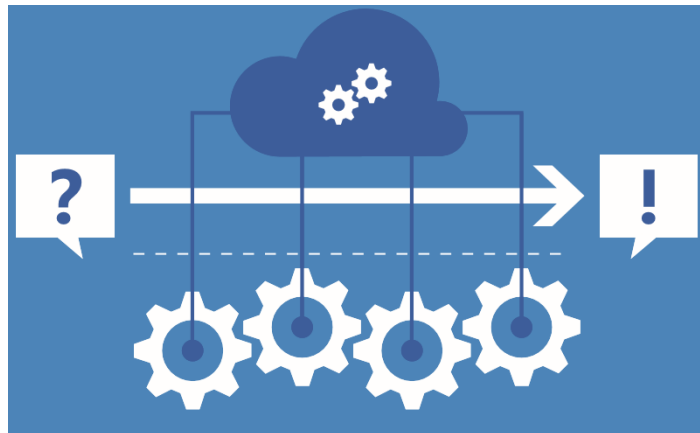
1 Customer
3 Business Partners

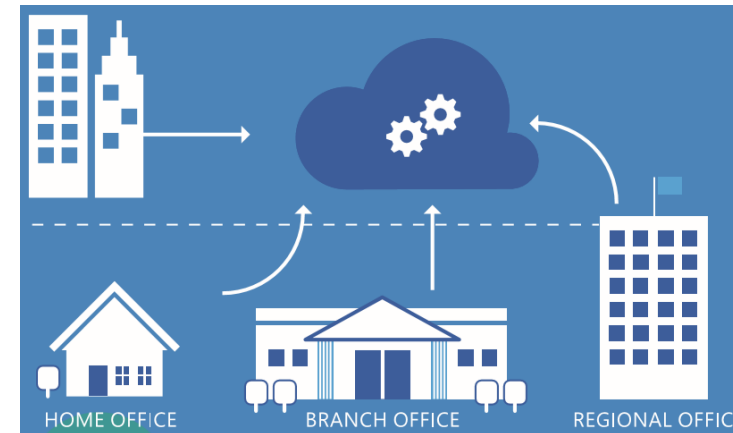AS2   SLTP   HTTP

> 10 Existing

+ 2 more
Service Desk and
Work Management
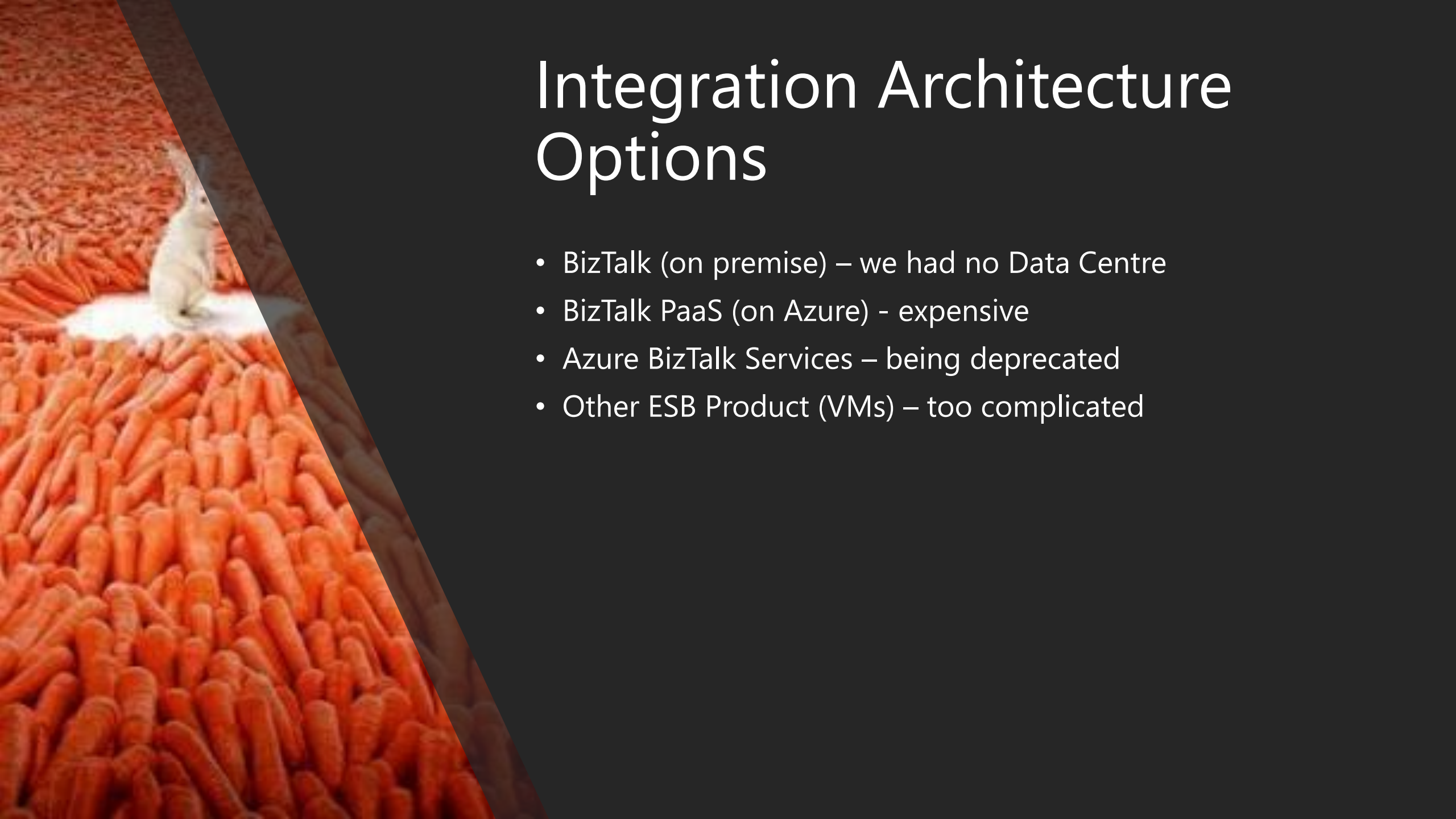
Live Data Warehouse

Manage data
sequencing

?   !

HQ - Melbourne

Ops Centre in
Perth

2 Regional Hubs

HOME OFFICE   BRANCH OFFICE   REGIONAL OFFICE

Orchestration

Branch

Integration Architecture Options

- BizTalk (on premise) – we had no Data Centre
- BizTalk PaaS (on Azure) - expensive
- Azure BizTalk Services – being deprecated
- Other ESB Product (VMs) – too complicated

SELECTED - Azure Service Bus

- Aligned with ICT Cloud Strategy
- Aligned with Microsoft Standardisation
- Cost Effective compared to BizTalk PaaS - $$$$

Pro Integration Developer

Complex integration
On-prem LOB systems
Mission critical
Dedicated IT resources
Organization-centric
Messaging patterns

Web and Mobile Pro Dev

Point to point integration
SaaS
Failure expected/tolerated
Democratized
User-centric
API-based

BizTalk Server

Logic Apps

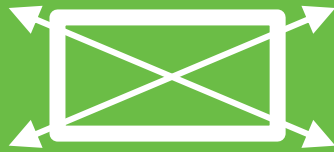# Azure Integration - Overview

- Service Bus
- API Connectors
- Logic Apps
- Workflow Definition Language
- API Apps and API Management

EAI Capabilities

- VETER

- TRANSFORM

VETER

Transform

Connect LOB

VETER

- Validate
- Extract
- Transform
- Enrich
- Route

| Validate | XML Validation | Extract | xpath | Transform | XSL Transform | Enrich | @compose | Route | Send to Topic |
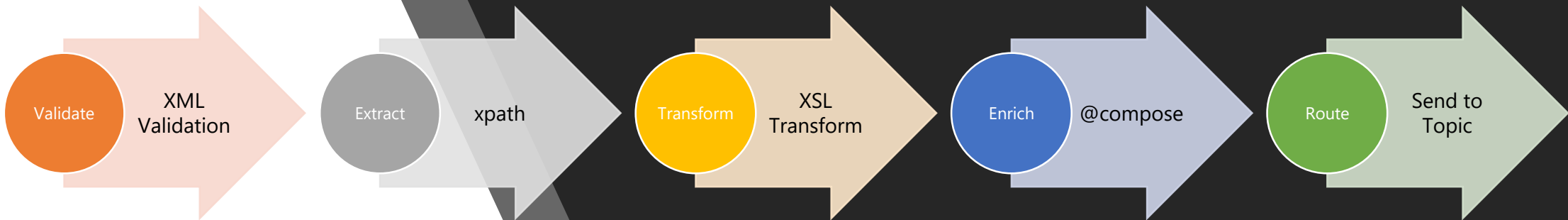
Service Bus

- Relay Service

- Queues

- Topics and Subscriptions

- Event Hubs

Relay Messaging

- Synchronous

- Peer-to-Peer Connections

- Web Standards (SOAP, WS-*, WCF and REST)

Brokered Messaging

- Asynchronous (temporal decoupled)

- Messages stored in "Broker" (i.e. Queue)

Queues

- First-In, First-Out

- Service Bus On-Ramp (receive data from Producer app)

- Service Bus Off-Ramp (send data to Consumer app)

- Temporal Decoupling (send and received at different times)

- Load Levelling (send and receive at different rates)

Topics and Subscriptions

- Publish-Subscribe pattern

- Event based Integration

- Subscriber registers with the Topic

- Filter rules route message to Subscribers

- Notification Hubs

Event Hubs

- Event and telemetry

- Low latency

- High Reliability

API Connectors

Connecting to APIs

- Managed APIs
  - OOB APIs hosted by Logic Apps
  - Serviced by the product team
  - First class designer experience
  - Rapid development

- Custom and External APIs
  - First class designer experience using Swagger
    - Auto discovery of Azure hosted APIs
    - Declaratively reference an External API
  - Raw HTTP request for all other API

- API Connections
  - Authenticate once and re-use
  - Differentiate connection configuration
  - Simple to deploy

Built-in API Connectors

SaaS

- Box
- Chatter
- Dropbox
- Azure HD Insight
- Slack
- Azure Media Services
- OneDrive
- SharePoint
- SQL Azure
- Office 365
- QuickBooks
- SalesForce
- Sugar CRM
- Dynamics CRM
- Azure Service Bus
- Azure Storage
- Timer / Recurrence
- Twilio
- Twitter
- Azure Web Jobs
- Yammer

Hybrid

- IBM DB2
- Informix
- Websphere MQ
- SQL Server
- SharePoint Server
- Oracle
- SAP
- Hybrid Connectivity

BizTalk Messaging & B2B

- Batching / Debatching
- Validate
- Extract (XPath)
- Transform (+Mapper)
- Convert (XML-JSON)
- Convert (XML-FF)
- X12
- EDIFACT
- AS2
- TPM
- Rules Engine
- Flat file

Protocols

- HTTP, HTTPS
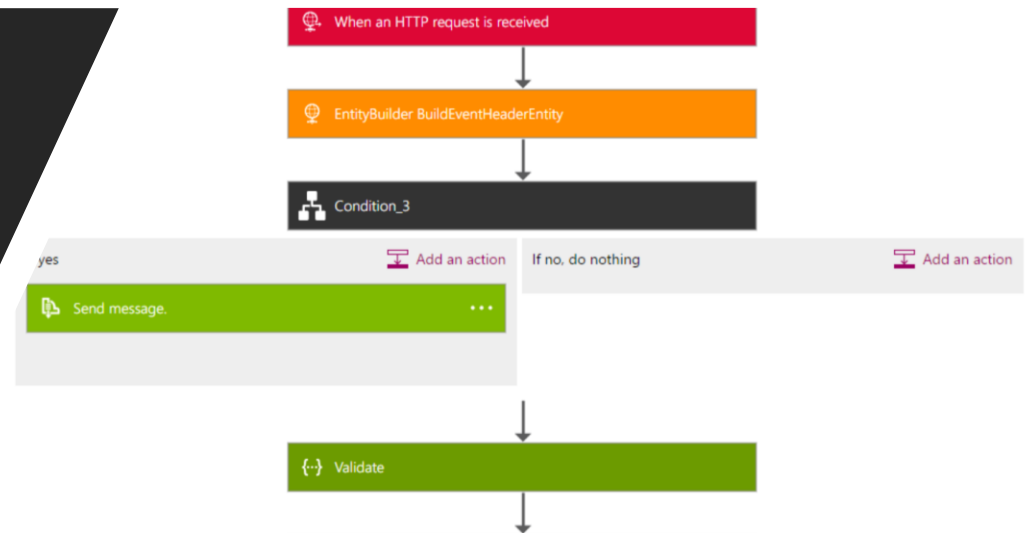- FTP, SFTP
- POP3/IMAP
- SMTP
- File
- Delay

Logic Apps

Logic Apps

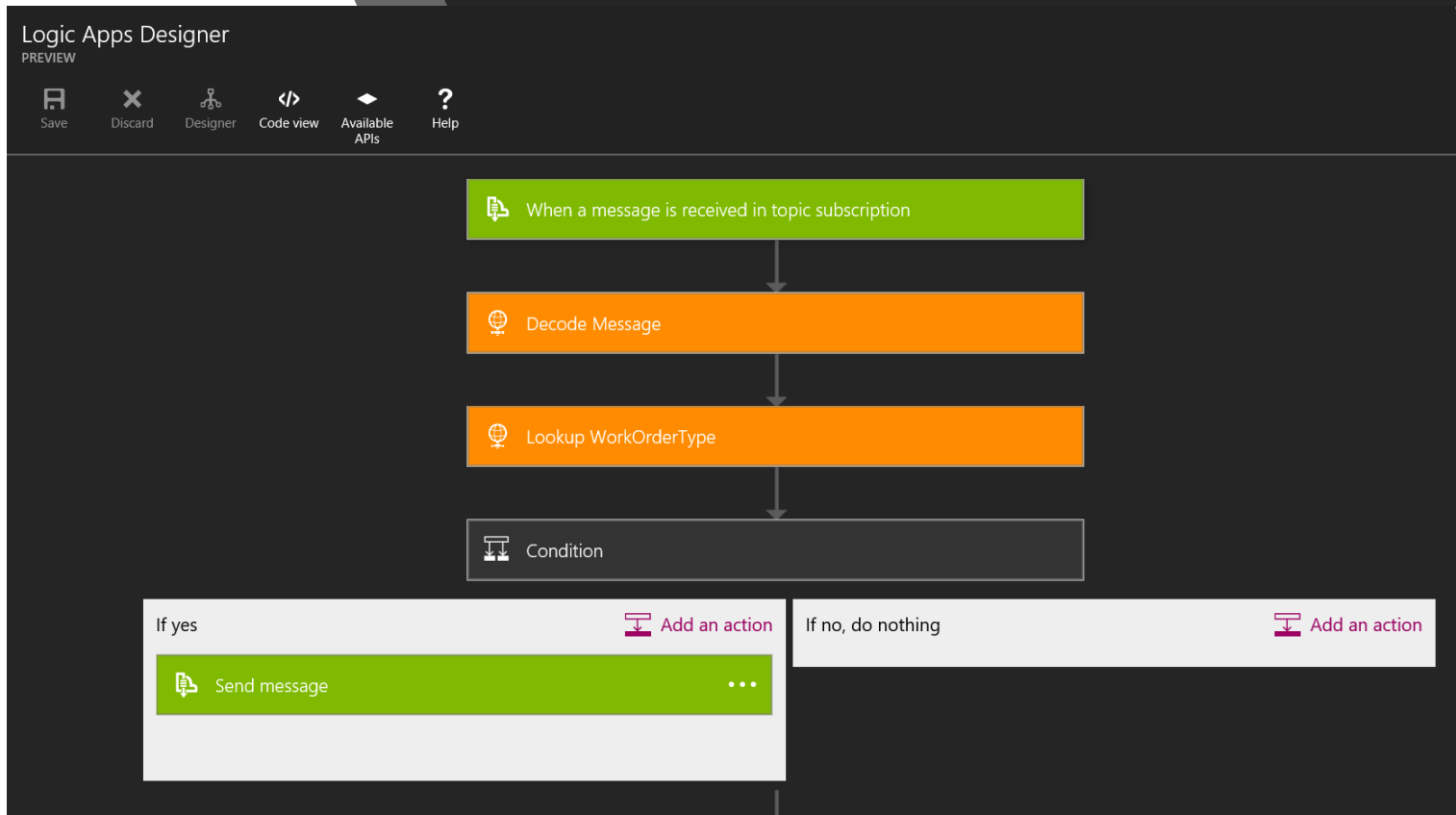- Visual Design on Azure Portal

- View in JSON if desire

Logic Apps - Designer
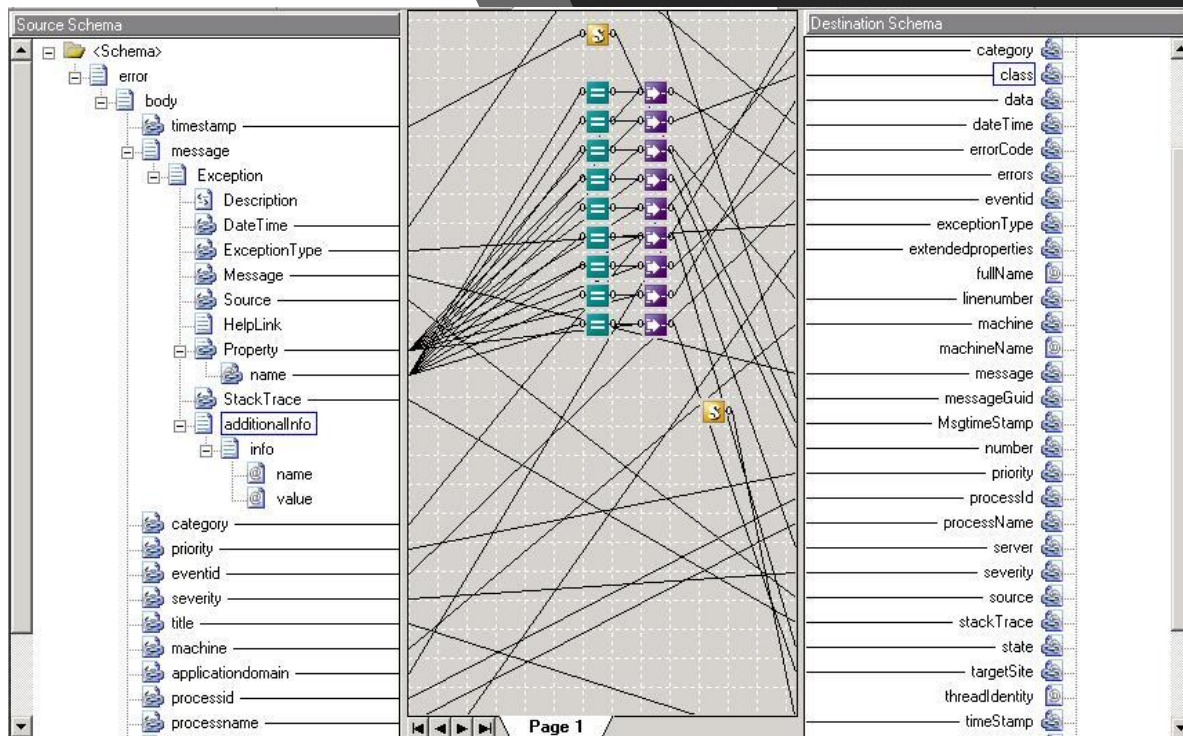
- **Trigger**
- **Action**
- **Condition**
- **Route**

TRANSFORM

- BizTalk Transform – VS 2012

- Convert to .trfm

Logic Apps – JSON Code

- **Trigger**

- **Action**

- **Condition**

- **Route**

Logic Apps Designer
PREVIEW

Save | Discard | Designer | Code view | Available APIs | Help

```json
1  {
2      "$schema": "https://schema.management.azure.com/providers/Microsoft.Logic/schemas/2015-08-01-preview/workflowdefinition.json#",
3      "actions": {
4          "EntityBuilder_BuildEventHeaderEntity": {
5              "conditions": [],
6              "inputs": {
7                  "authentication": {
8                      "audience": "0cf8a990-b4d8-4e6f-8e3d-3fe224ff91f9",
9                      "clientId": "b3d82c3a-74ed-482b-bd05-f8ecff27b0e8",
10                     "secret": "L1nFvmKJbBsOh78fP64YZy9kiRUwTujMClaQVeIX5rtcH",
11                     "tenant": "a289d6c2-3b1f-4bc4-8fa0-6866ff300052",
12                     "type": "ActiveDirectoryOAuth"
13                 },
14                 "body": {
15                     "ContractCode":        ,
16                     "Customer":        ,
17                     "Event": "PersonUpdated",
18                     "SystemName":        
19                 },
20                 "method": "post",
21                 "uri": "https://au-    -integration-cdmServices-sit.azurewebsites.net/api/eventheader/build"
22             },
23             "type": "Http"
24         },
25         "ResponseAccepted": {
26             "conditions": [
27                 {
28                     "expression": "@equals(actions('Transform')['status'], 'Succeeded')"
29                 },
30                 {
31                     "dependsOn": "Transform"
32                 }
```

API Apps and API Management

Azure App Service

WEB APPS
Web apps that scale with your business

MOBILE APPS
Build Mobile apps for any device

LOGIC APPS
Automate business process across SaaS and on-premises

API APPS
Easily build and consume APIs in the cloud

Microsoft

API Apps

- Hosting
- Simple Access Control
- CORS
- Trigger / Actions

API Management

- Monitor
- Throttle
- Manipulate
- Secure
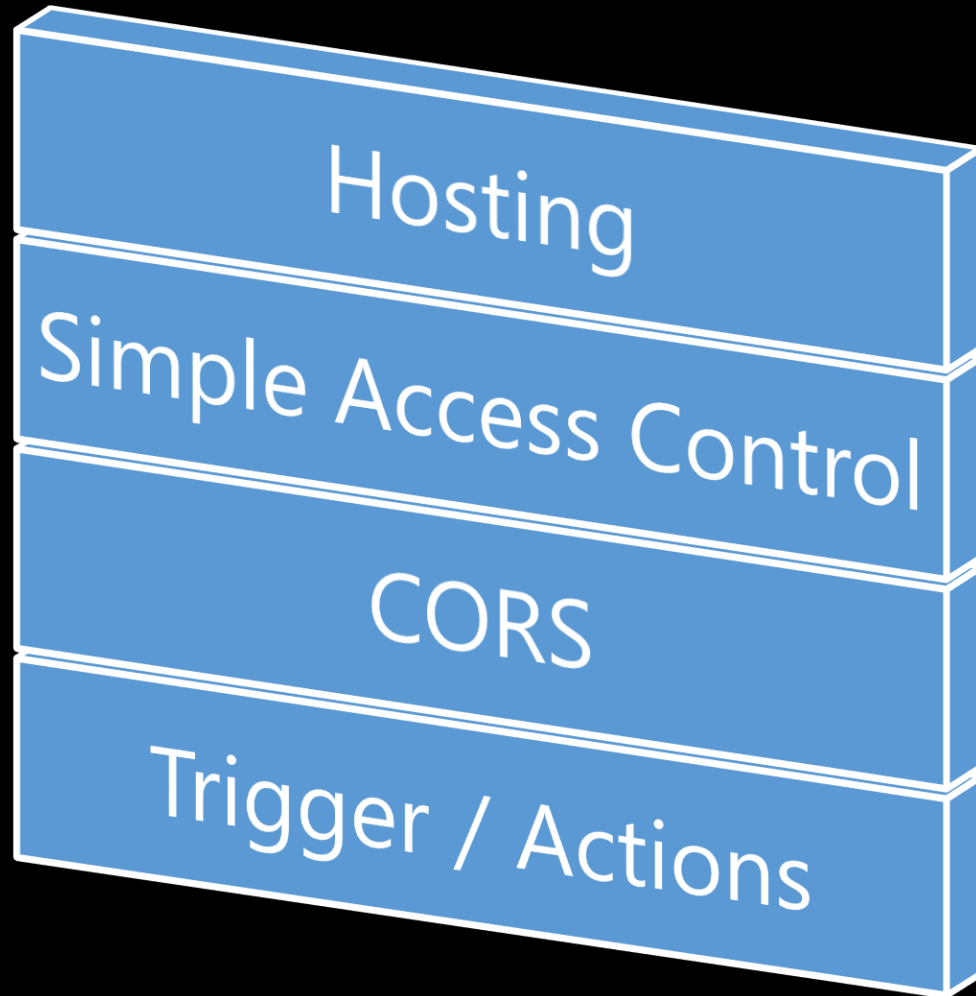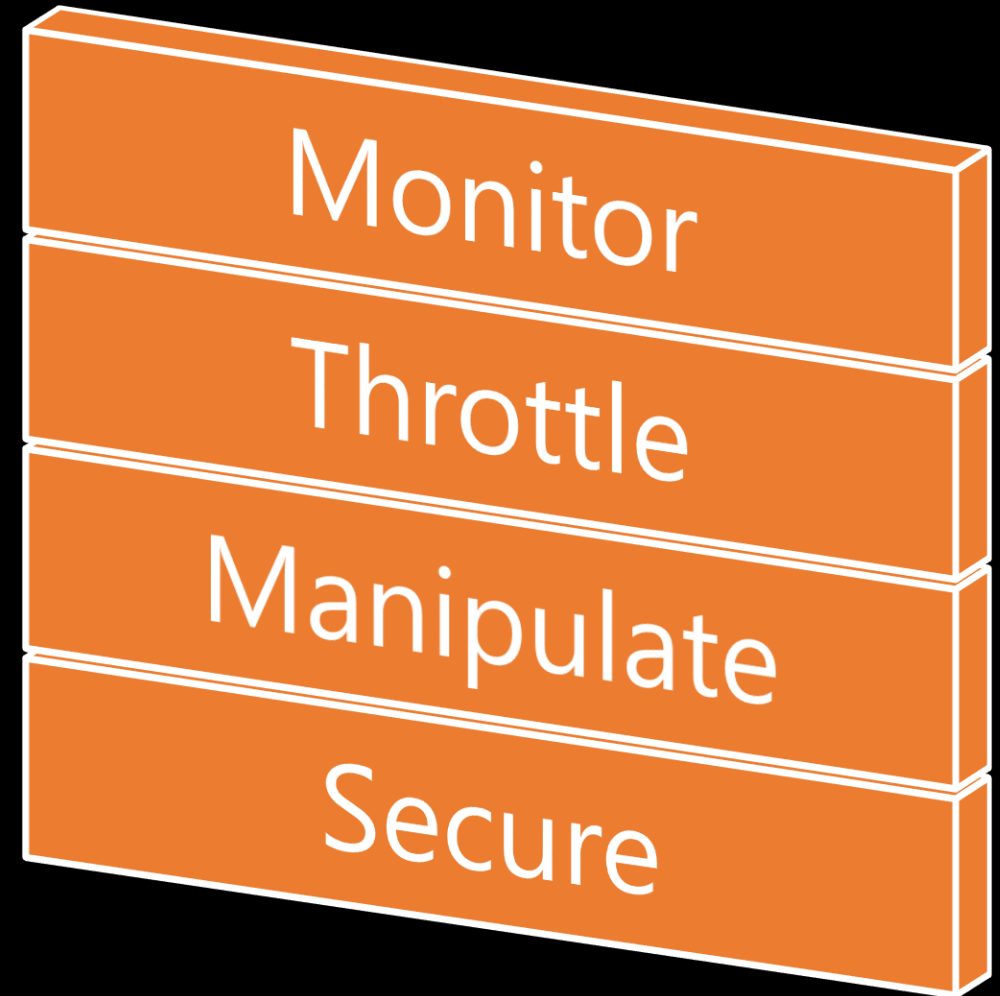
Structure and Deploy

- Subscription
- Resource Groups
- App Service Plan

Subscriptions

SUBSCRIPTION	SUBSCRIPTION ID	SUBSCRIPTION STATUS	
EA ██████ Dev and Test	██████████	✅ Active	...
EA ██████ UAT and Prod	██████████	✅ Active	...

Resource groups

Add   Columns   Refresh

Subscriptions: 1 of 2 selected

Filter items...	UAT and Prod

NAME	SUBSCRIPTION	LOCATION
au-████ integration-apps-prod	UAT and Prod	Australia Southeast
au-████ integration-apps-uat	UAT and Prod	Australia Southeast
au-████ integration-crm-prod	UAT and Prod	Australia Southeast
au-████ integration-crm-uat	UAT and Prod	Australia Southeast
au-████ integration-infrastructure-prod	UAT and Prod	Australia Southeast
au-████ integration-infrastructure-uat	UAT and Prod	Australia Southeast

## au████integration-crm-uat
Resource group

Refresh

Essentials ⌄

workorder

NAME	TYPE	R.	L.	S..
event-crmworkordercreated-uat	Logic App	a.	A	R.. ...
task-createintegrationworkorder-uat	Logic App	a.	A	R.. ...
task-createworkorderproduct-uat	Logic App	a.	A	R.. ...
task-createworkorderservice-uat	Logic App	a.	A	R.. ...
task-mapworkorder-uat	Logic App	a.	A	R.. ...
task-processworkordernote-uat	Logic App	a.	A	R.. ...
task-updateworkorder-uat	Logic App	a.	A	R.. ...

Dashboards

- Live and Dynamic

- Use Blades from an Logic App (Event, Topic or Queue)
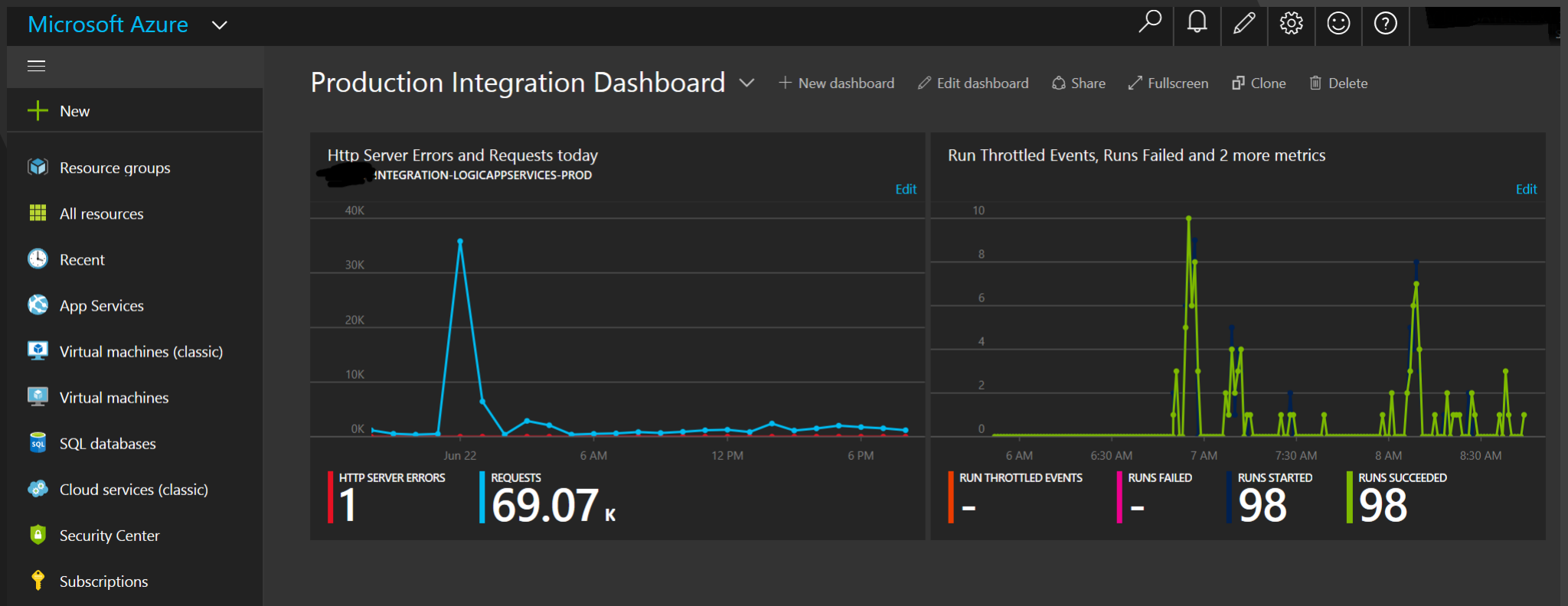
The Non-Functional Bits

- Security
- Performance
- Scalability
- Auditability
- Traceability
- Deployment
- Release

Challenges

Improvements

Challenges

Logic App Designer
• Azure Portal Only

Data Transforms
• Visual Studio 2012

Exception Handling
• Originally non-existent

Preview Performance
• Throttled (Number of Logic Actions)

Integration Artifact Management
• Manual or Use DGML scriptiing

Improvements

Logic App Designer
• VS Designer (announced 9th June)

Data Transforms
• BizTalk Transform API App, XSLT with Functiods

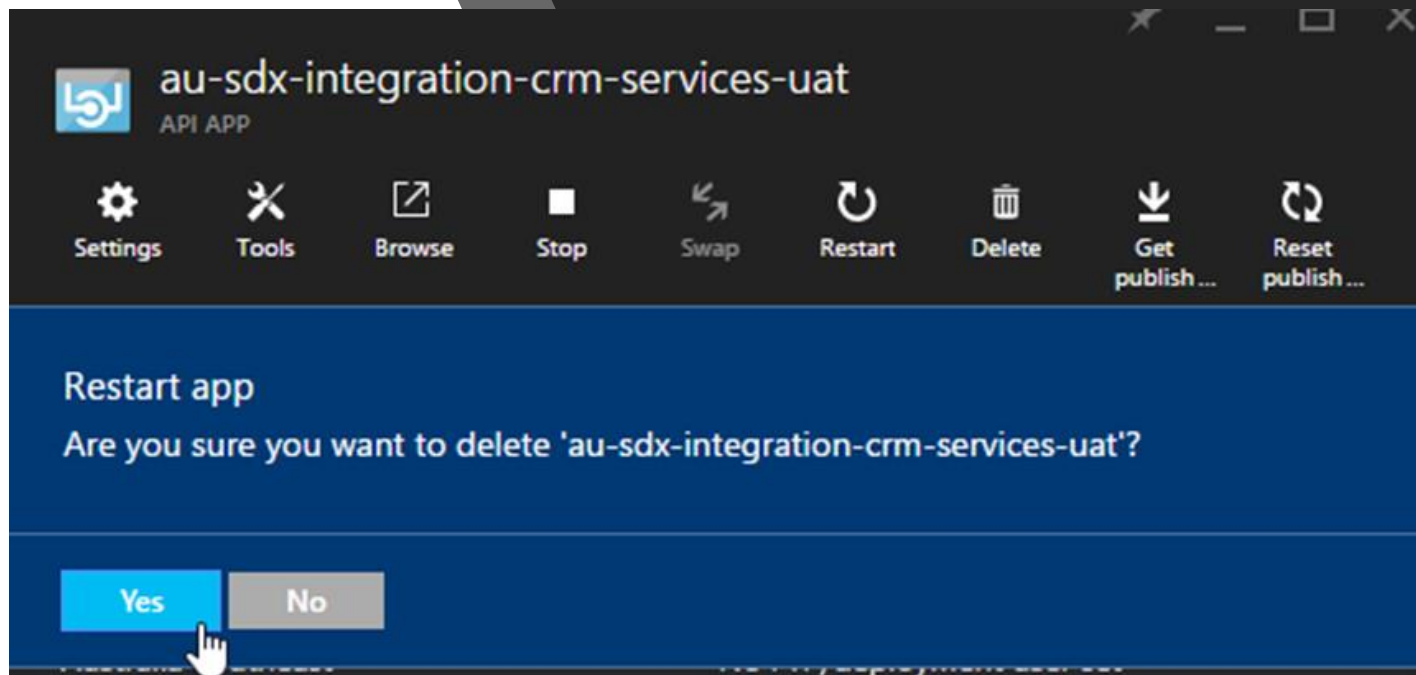| Exception Handling |
|---|
| • Designed with Microsoft |

Performance
• Consumption based

Integration Artifact Management
• Integration Accounts (announced 9th June)

Bleeding Edge

- Make sure you read the text before answering questions
- Keep copies of Designers

New Integration API Apps

BizTalk Rules
Microsoft

API App

BizTalk X12
Microsoft

API App

BizTalk EDIFACT
Microsoft

API App

BizTalk JSON Encoder
Microsoft

API App

BizTalk XML Validator
Microsoft

API App

BizTalk Transform Service
Microsoft

API App

BizTalk Trading Partner
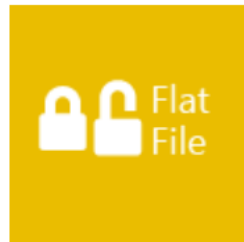Microsoft

API App

BizTalk XPath Extractor
Microsoft

API App

BizTalk Flat File Encoder
Microsoft

API App

Roadmap

- Logic Apps - Going GA "Now"
- Integration as a Service (BT Validate, Transform etc.)
- Flow Apps (IFTTT)

Preview
Enterprise Integration Pack

Preview
Logic Apps on Azure Stack

Preview
Logic Apps update

CTP
BizTalk Server

Beta
BizTalk Server

More Logic Apps Connectors

| Q1 '16 | Q2 | Q3 | Q4 | All Year | Q1 '17 |

GA
Logic Apps

Integrate

2016

GA
Enterprise Integration Pack

RTM BizTalk Server

GA
Logic Apps on Azure Stack

CU1 BizTalk Server