



Maximising vFire with Automation

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Who Am I?

David McKinney

- Senior Consultant at Lida Solutions
- 26 years in the industry with a background in Software Development, Application Architecture & IT Project Mgmt
- 12 years experience with vFire, ITSM & ITIL



Who are Lida Solutions?

- IT Service Management Consultancy based in Sydney & Canberra and with clients throughout Australia & NZ
- Alemba Partner
- Customers in all levels of government plus the Finance, Energy, Manufacturing and Retail sectors
- Experts in vFire automation, integration and orchestration



80/20

A snapshot of the 80%

- Robust and mature Incident Management processes
- Minimal vFire workflow (often just Change Management)
- Low level portal use – in the order of 25% of calls logged
- Not much use outside of IT
- Basic CMDB (PCs, laptops, maybe servers or software)
- Very little in terms of formal Knowledge

Under pressure

- Eliminate inefficiency
- Reduce errors
- Do it faster
- Improve customer satisfaction
- Maximise use and skills of staff
- At lower cost



How do we respond?

WHAT
SHOULD
I DO ?



Automation



Automation

- Initiate from the Portal



Automation

- Initiate from the Portal
 - Automate the business process
- AND
- Automate the technical activities



Scenario: a new starter



What does a new starter need?

- A desktop with software
- A network login and email address
- A phone
- Access to business apps



What does a new starter **really** need?

CUSTOM
made

All of that IT stuff, plus:

- A desk
- Building access
- HR & Payroll set up
- A corporate credit card



EPIC

The basic approach

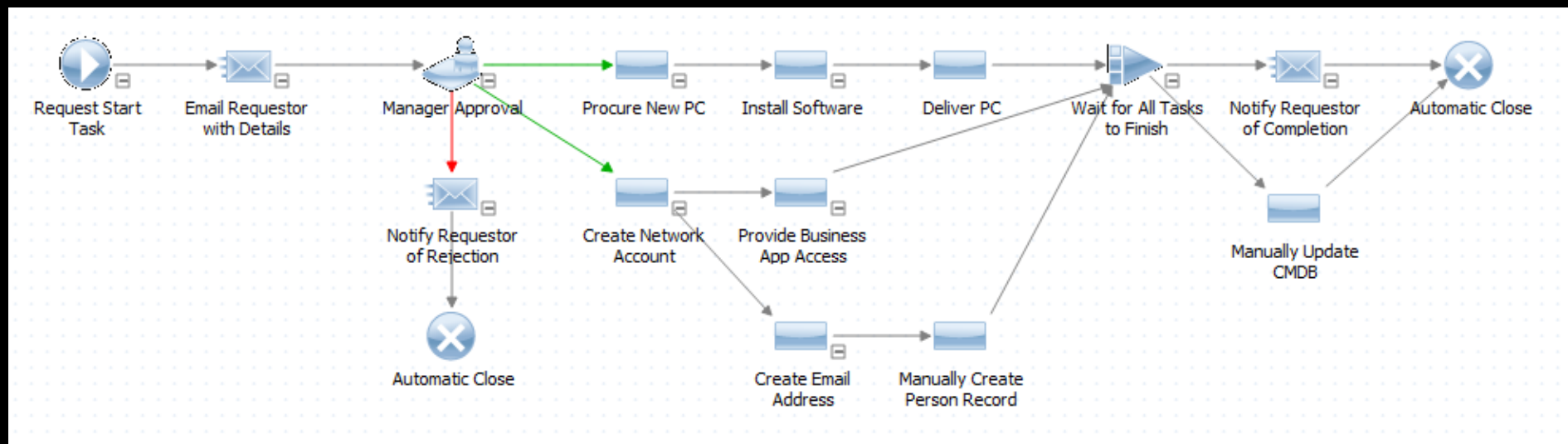
- The hiring manager logs a ticket with the Service Desk
- Someone in IT gets the ticket and co-ordinates the activities

The basic approach – some issues

- The process is often in the head of the analyst, which leads to inconsistencies, oversights and mistakes
- If approvals are required, these are gathered outside the tool, potentially leaving audit issues
- If the analyst gets sick, how can anyone take over?
- What visibility is there for the hiring manager?
- There is a time-consuming overhead to the process due to the manual co-ordination required for the analyst

The “process automated” approach

- The hiring manager logs a ticket through a Portal form which captures the necessary information
- Any approvals are assigned automatically via vFire
- vFire then assigns tasks to the correct teams, in the correct order
- Communication to the manager is automated via messaging tasks, and the request can be viewed in the Portal



Benefits

- The process is mapped out via the workflow so is consistent and repeatable
- There is no dependency on a single (point of failure) analyst to ensure the outcomes are delivered
- Choke points are identifiable as individual tasks can be monitored
- Progress of the request is easy to track

Issues

Analysts are still performing tasks manually that are simple, repeatable and low value-add

- Installing software
- Creating network accounts and email addresses
- Updating the CMDB etc

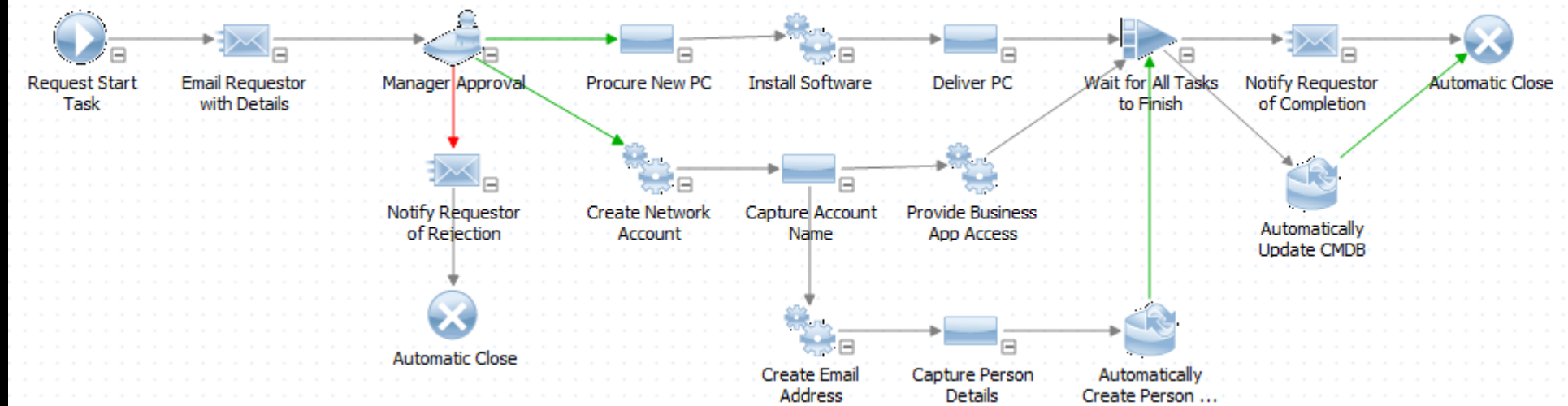
This results in:

- Slower delivery
- Risk of errors
- Low value use of analyst time

The “fully automated” approach

vFire provides several ways to automate the actual technical activities via its workflow engine:

- External Procedure Tasks
- Manage CMDB Tasks
- Outbound Action Tasks



Benefits

Manual tasks are now automated

- Frees up analyst time and reduces cost
- Improves quality
- Reduces time to deliver

Issues

External Procedure tasks have some limitations:

- They can only accept command line parameters, so don't support vFire functions like Transforms and Profile Maps
- They don't get back parameters back, so if vFire needs the result of a script, someone has to go and get it

The vRealize Orchestrator approach



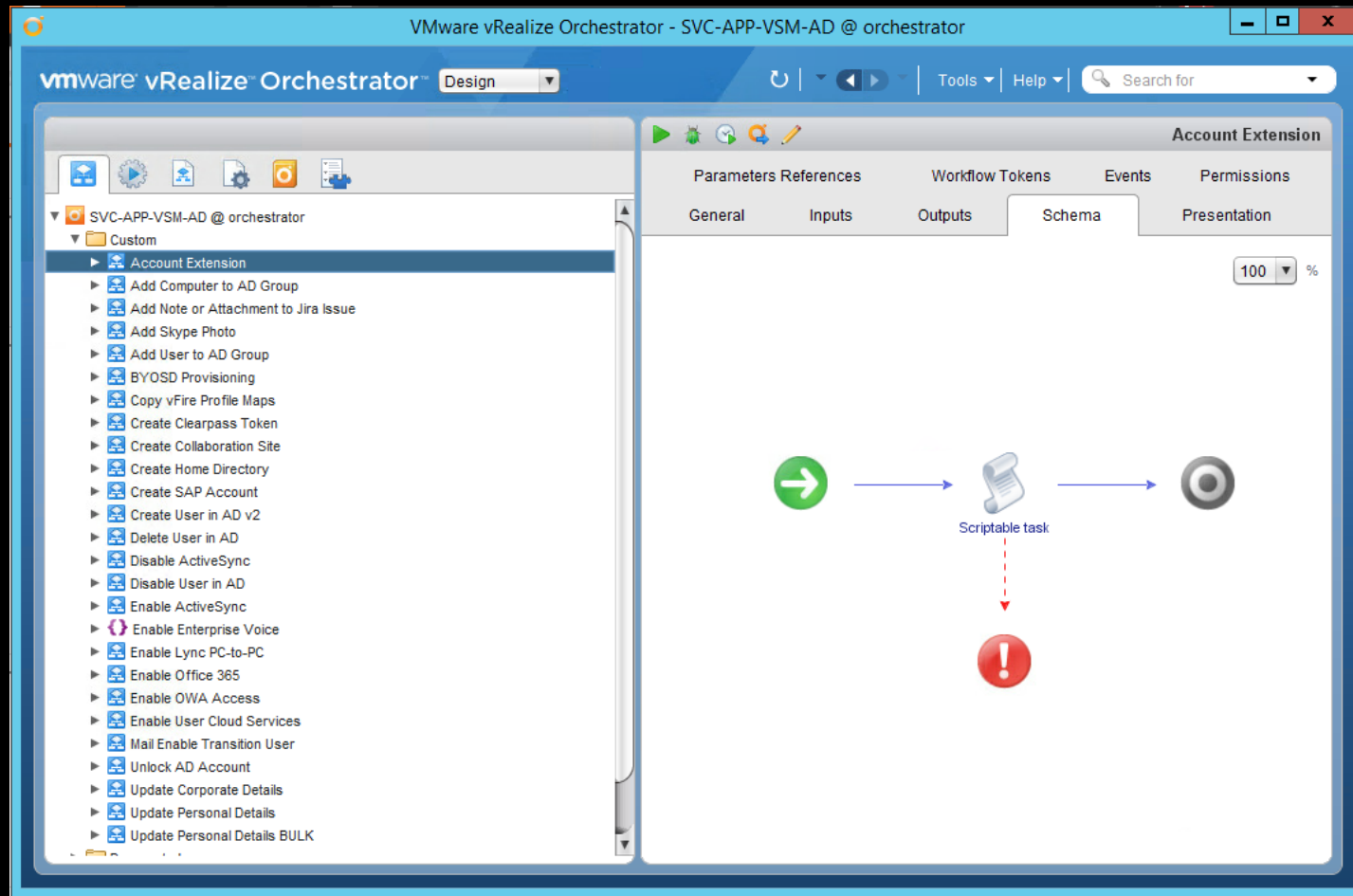
The vRealize Orchestrator approach

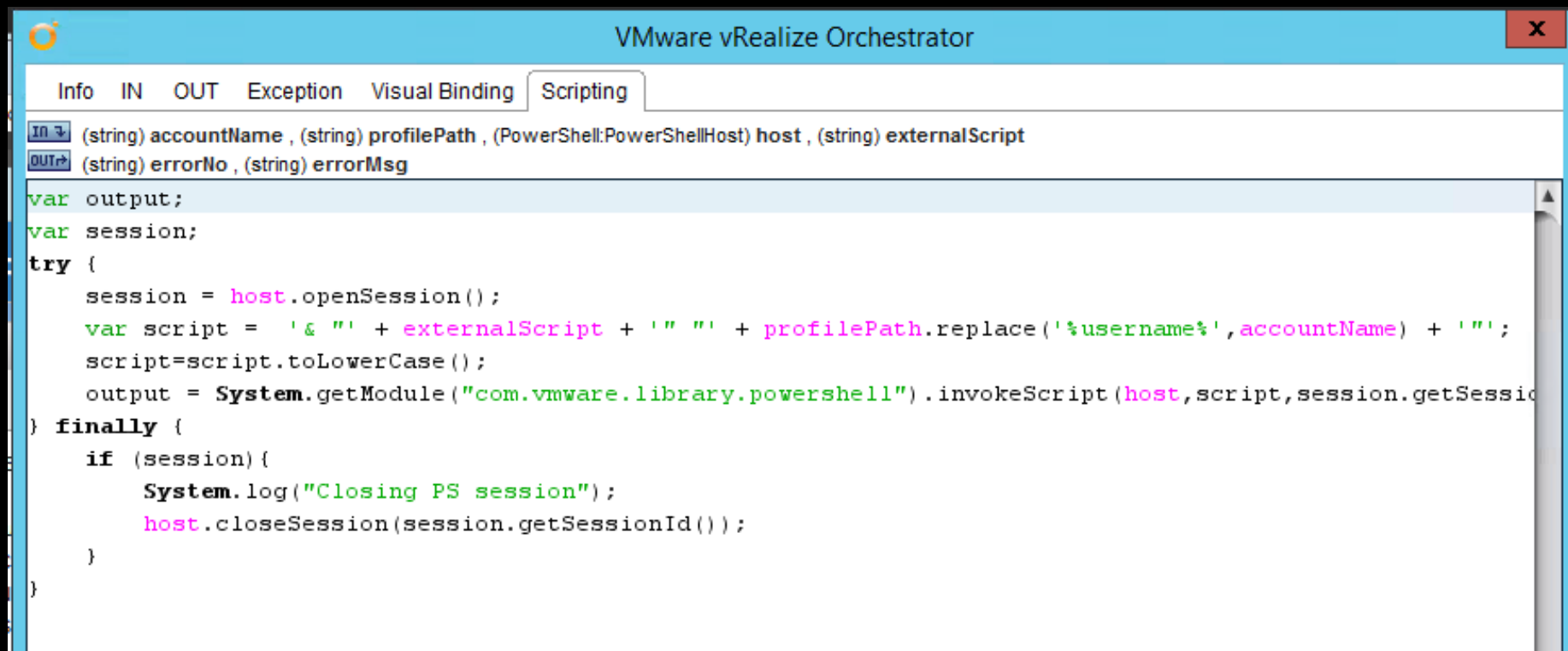
- vRealize Orchestrator (vRO) called from within vFire workflows
- vRO is free as part of vCenter
- Enables you to run pre-canned or custom workflows against your existing applications and infrastructure
- Provides plug-ins for over 100 applications and technologies

vRO plug-ins

Plug-ins include:

- Active Directory
- PowerShell
- HTTP-REST & SOAP
- SQL
- vCenter
- AWS, Azure, Google Cloud





The screenshot shows the VMware vRealize Orchestrator interface. The title bar is blue with the VMware logo and the text "VMware vRealize Orchestrator". Below the title bar is a tabbed interface with tabs for "Info", "IN", "OUT", "Exception", "Visual Binding", and "Scripting". The "Scripting" tab is active. It contains two input/output fields and a script editor. The input field is labeled "IN" and contains the text "(string) accountName , (string) profilePath , (PowerShell:PowerShellHost) host , (string) externalScript". The output field is labeled "OUT" and contains the text "(string) errorNo , (string) errorMsg". The script editor contains the following PowerShell code:

```
var output;
var session;
try {
    session = host.openSession();
    var script = '& "' + externalScript + '" "' + profilePath.replace('%username%',accountName) + '"';
    script=script.toLowerCase();
    output = System.getModule("com.vmware.library.powershell").invokeScript(host,script,session.getSessionId());
} finally {
    if (session){
        System.log("Closing PS session");
        host.closeSession(session.getSessionId());
    }
}
```

Real life vRO use cases

Active Directory:

- Create/update/extend/delete/disable/unlock account
- Add user or computer to group or OU

Real life vRO use cases

PowerShell:

- Create Collaboration Site (SharePoint Teamsite/Project Site/Comms Site)
- Enable Office365
- Update Skype for Business photo (O365)
- Add/remove user to shared drive or email distribution list
- Enable OWA access
- Enable User Cloud Services
- Create home drive
- BYOD provisioning
- Enable/Disable ActiveSync, Enterprise Voice, Lync PC-to-PC



Real life vRO use cases

vCenter:

- Create/modify/delete VM
- Create/restore/delete snapshot
- Reboot VM

REST API:

- Update server owners in Tenable Security Centre
- Add attachments to issues in Jira

Real life vRO use cases

SOAP:

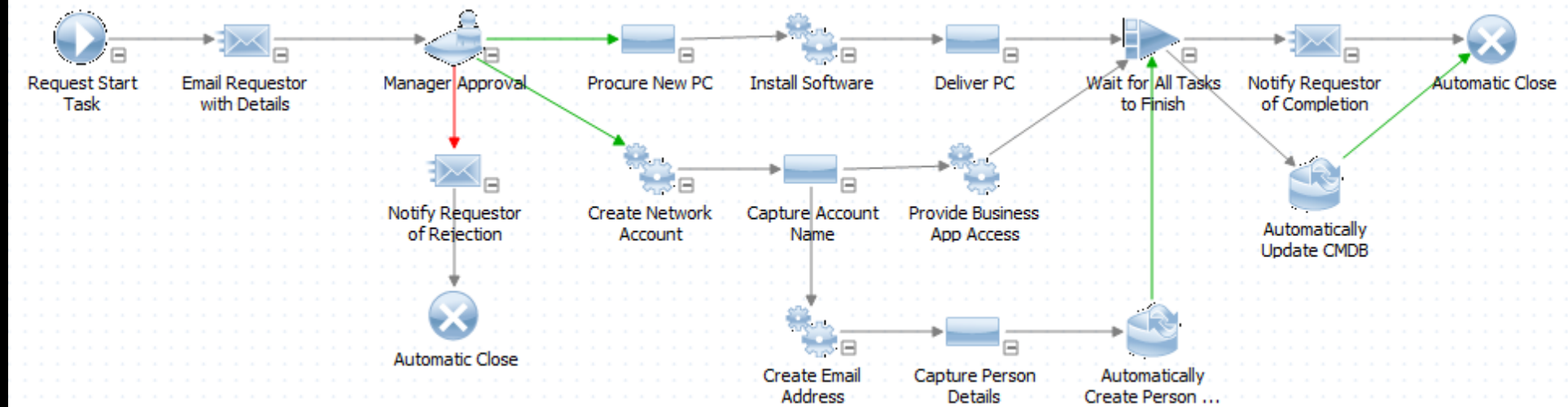
- Create SAP account

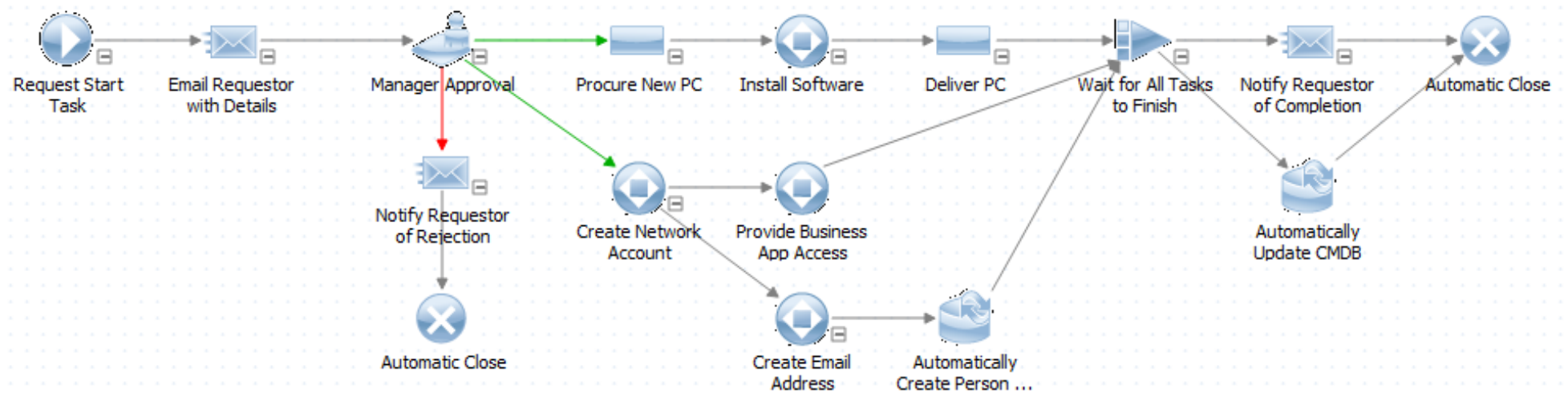
General (no plugin):

- Create Clearpass token (for guest wifi access)

The vRealize Orchestrator approach

Replace External Procedure Tasks with Outbound Action Tasks running vRO workflows





▼ Mapping Details

Source: vCentre Orchestrator

Action: Create User in AD v2

Outgoing Incoming

☐ Send Notify for system generated history messages

Action Field

▶ firstName

surname

siteCode

streetAddress

postBox

city

state

Add Remove

▶ Manage CMDB Transactions

▶ Action Information

Linked CIs

Search

Filter

Refresh

Create User in AD v2

Create virtual machine anti-affinity rule

Create virtual machine folder

Create VMDK anti-affinity rule

Create VMFS for all available disks

Customize virtual machine from properties

Customize, Windows with single NIC and credential

Declare a queue

Declare an exchange

Define Namespace

Define Relation

Define Type

Delete a package

Delete a package by name

Delete a queue

Delete a remote workflow

Delete a trusted certificate

Delete all files

Delete all finished workflow runs

Delete all unused datastore files

Delete all workflow runs

Delete an exchange

Delete an Orchestrator server

Delete an Orchestrator server (Deprecated)

Delete cluster

Delete datacenter

Delete datacenter folder

Delete datastore

Delete directory in guest

Delete distributed virtual port group

▼ Mapping Details

Source: vCentre Orchestrator Action: Create User in AD v2

Outgoing Incoming

☐ Send Notify for system generated history messages

Action Field	Internal Field
firstName	{Request:First Name}
surname	{Request:Surname}
siteCode	{Request:New Location 2/Site Code}
streetAddress	{Request:New Location 2/Address Line 1}
postBox	{Request:New Location 2/PO Box}
city	{Request:New Location 2/Suburb}
state	{Request:New Location 2/State}

Add Remove

▼ Mapping Details

Source: vCentre Orchestrator Action: Create User in AD v2

Outgoing Incoming

Internal Record	Internal Field	Action Field	Update
Request	User Id	{Action:accountName}	Always
Request	Password	{Action:password}	Always
Request	Char 1	{Action:validExpiryDate}	Always
Request	Error Code	{Action:errorNo}	Always
Request	Error Message	{Action:errorMsg}	Always

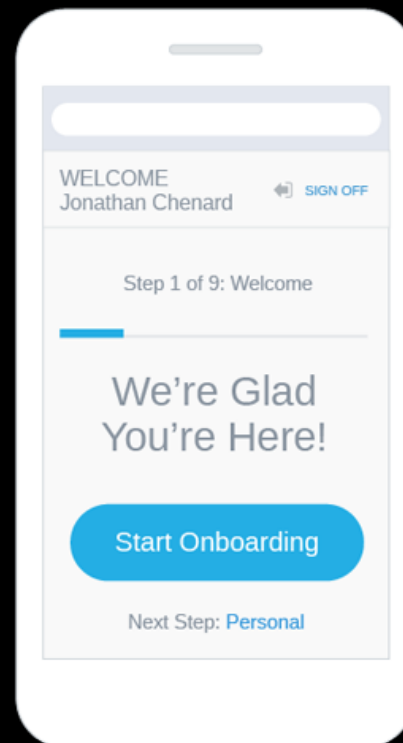
Add Remove

Benefits

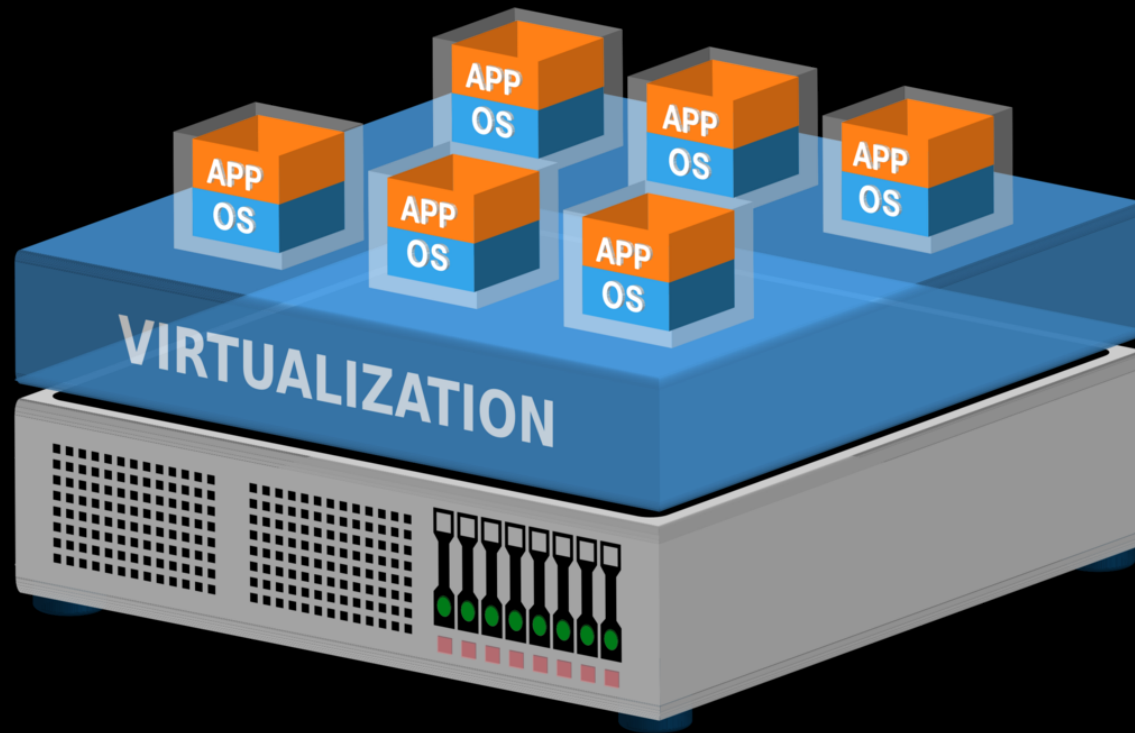
Manual tasks are now automated

- Frees up analyst time and reduces cost
- Improves quality
- Reduces time to deliver
- Outbound Actions can receive multiple parameters back from vRO, and pass these to other automated tasks, potentially freeing up IT from the process altogether

Case Study: Employee Onboarding



Case Study: Virtual Machine Creation



Case Study: Virtual Machine Creation

The Problem:

- Major government department acting as infrastructure service provider to their agencies
- Take-up of service by agencies very slow as creation of virtual infrastructure constrained by technical complexity and resource limitations
- Situation only expected to get worse over time as volumes increased

Case Study: Virtual Machine Creation

The Solution:

- 'Request a VM' form added to the vFire Self-Service Portal
- On submission, a vFire workflow makes several calls to vRO to perform essential functions and then create the VM
- Two short manual validation steps required, reducing effort from days to a few minutes
- VM can be created in less than 30 mins

REQUEST A VIRTUAL MACHINE

Form(s) For: Request a Virtual Machine

* 1 form(s) to be completed before you can submit your order.

▼ CUSTOMER DETAILS *

Customer *

Business Group *

Project or Business Code *

▼ REQUESTED VIRTUAL MACHINE DETAILS *

Purpose & Description of Virtual Machine *

Environment *

Application *

Role *

Operating System *

Server Profile *

▼ CUSTOM VIRTUAL MACHINE SPECIFICATIONS

No of vCPU *

Memory *

No of Nics *

Disk Requirements:

Disk 1:

Disk 2:

Disk 3:

Disk 4:

Drive Letter *

Drive Letter

Drive Letter

Drive Letter

Size (Gb) *

Size (Gb)

Size (Gb)

Size (Gb)

Please note that selecting a Custom build will result in longer build duration due to the additional approvals required.

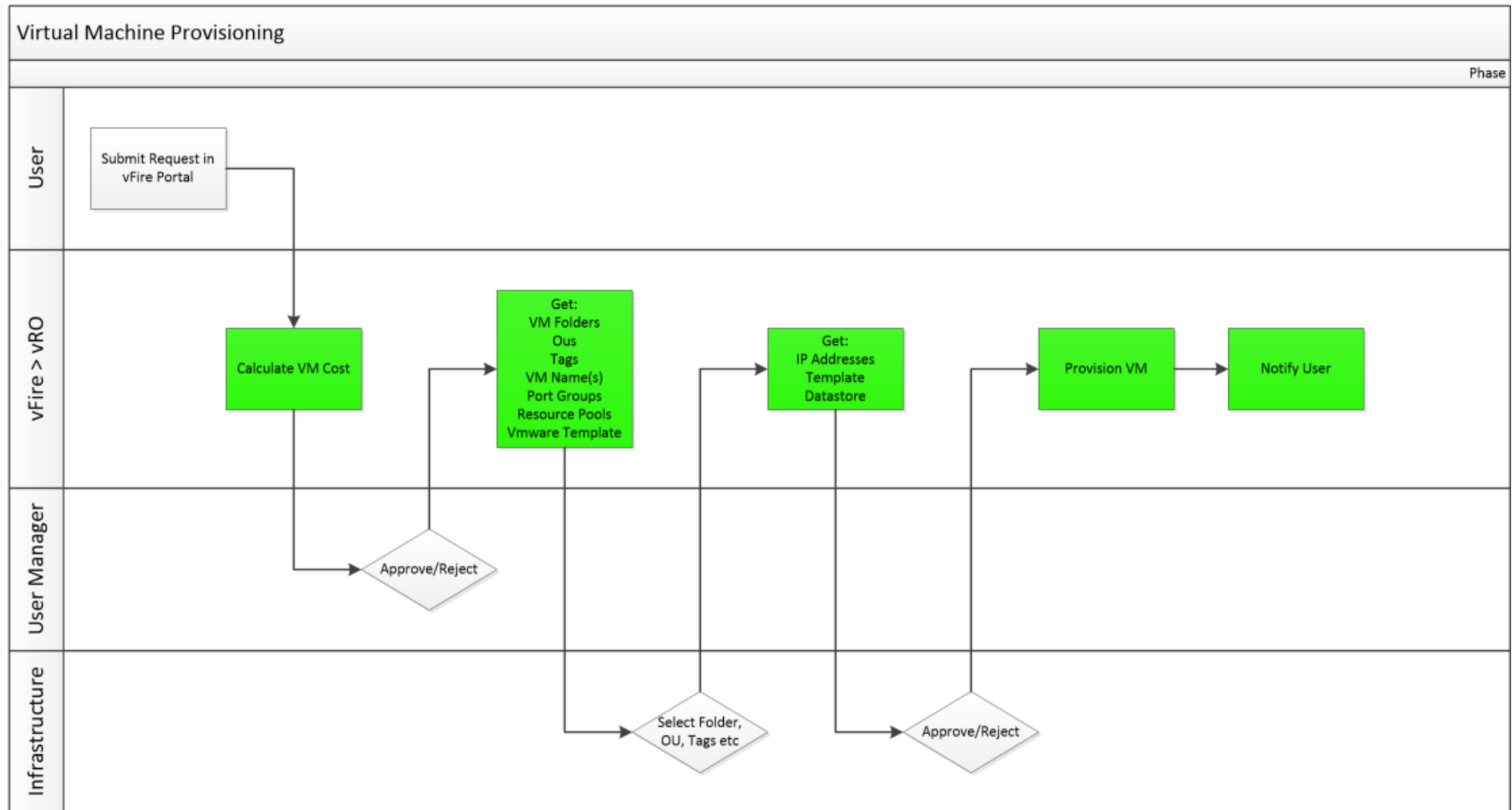
Network Profile *

Storage Profile *

Submit

Save for Later

Cancel



Case Study: Virtual Machine Creation

Benefits:

- Much quicker delivery time
- Significant reduction in IT effort
- Virtual elimination of errors
- Hopefully leading to an increase in consumption of services by agencies

Summary



Questions?

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