Zabbix for Hybrid Cloud Management

TIS Inc.   Daisuke IKEDA
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Riga,Latvia

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Agenda

About myself
- Server Engineer working at Research & Dev. Division

Approaching to Hybrid Environment Management System
- Integration and Automation

System Architecture
- Products component and Processing flows

Demonstration

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Daisuke Ikeda

Belongs To: **TIS Inc.**
Division: **Strategic Technology Center**
Research Subject: Managing Hybrid Cloud environment
My Recent Activities:
- **Chrome Extension for checking Zabbix Trigger "Chromix"**
- Android application for Zabbix "ZabiroiD"
- Articles for Technology sharing website by TIS "Tech-Sketch"
- Presentation at Zabbix study meeting in Japan(12 May,2012)

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What you see here today

Zabbix Instead of You - AUTOMATION

- Host Registration done by Zabbix
VMware Virtual machines
AWS EC2 instances

- Machine Setup Details kept trackable by Zabbix
VM resource status(CPU,Memory,Storage)
AWS EC2 instance info.(Instance Type, AZ, IP address etc.)
AWS Billing info.

Just Zabbix Dashboard - INTEGRATION

- Machine Control from Zabbix Dashboard
Start/Stop/Reboot/Terminate

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Complex and Mixed Machine Circumstances

We manage machines both on-cloud and on-premise;

- Many Cloud Services offered (AWS,Rackspace,...)
- Cloud services are prevailing
- But, we still need to manage on-premise machines too

Typical Scenario:

- Sensitive data needs to remain stored on-premise
- What happens ...

    DB server -> located on-premise for security reason
    AP server -> located on-cloud for scalability

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To Manage Hybrid environments

1. VMs have their private client software
- How many client s/w required to manage hybrid configuration?
  e.g.)
  - vSphere client (for VMware ESXi)
  - AWS management console (for AWS)
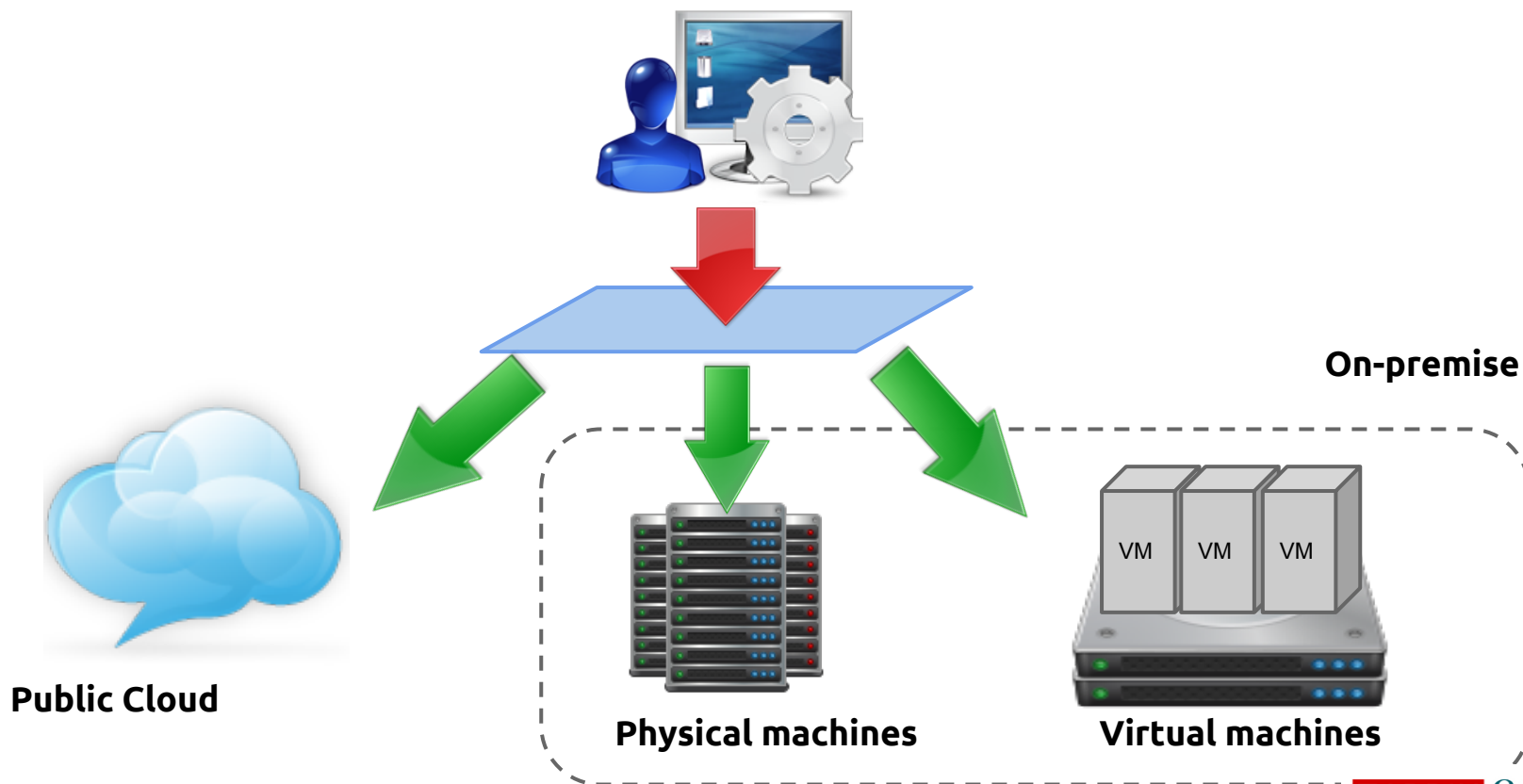 - System insight Manager (for HP Physical Machine)

2. More VMs to manage
- Configuring numbers of VM manually is impractical.

3. VMs change their setups very dynamically
- Keeping configuration documents up-to-date is really hard

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1. Integrated Management
for
Hybrid Environment

On-premise

Public Cloud

VM   VM   VM

Physical machines   **Virtual machines**

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2. Automated Management for Hybrid Environment

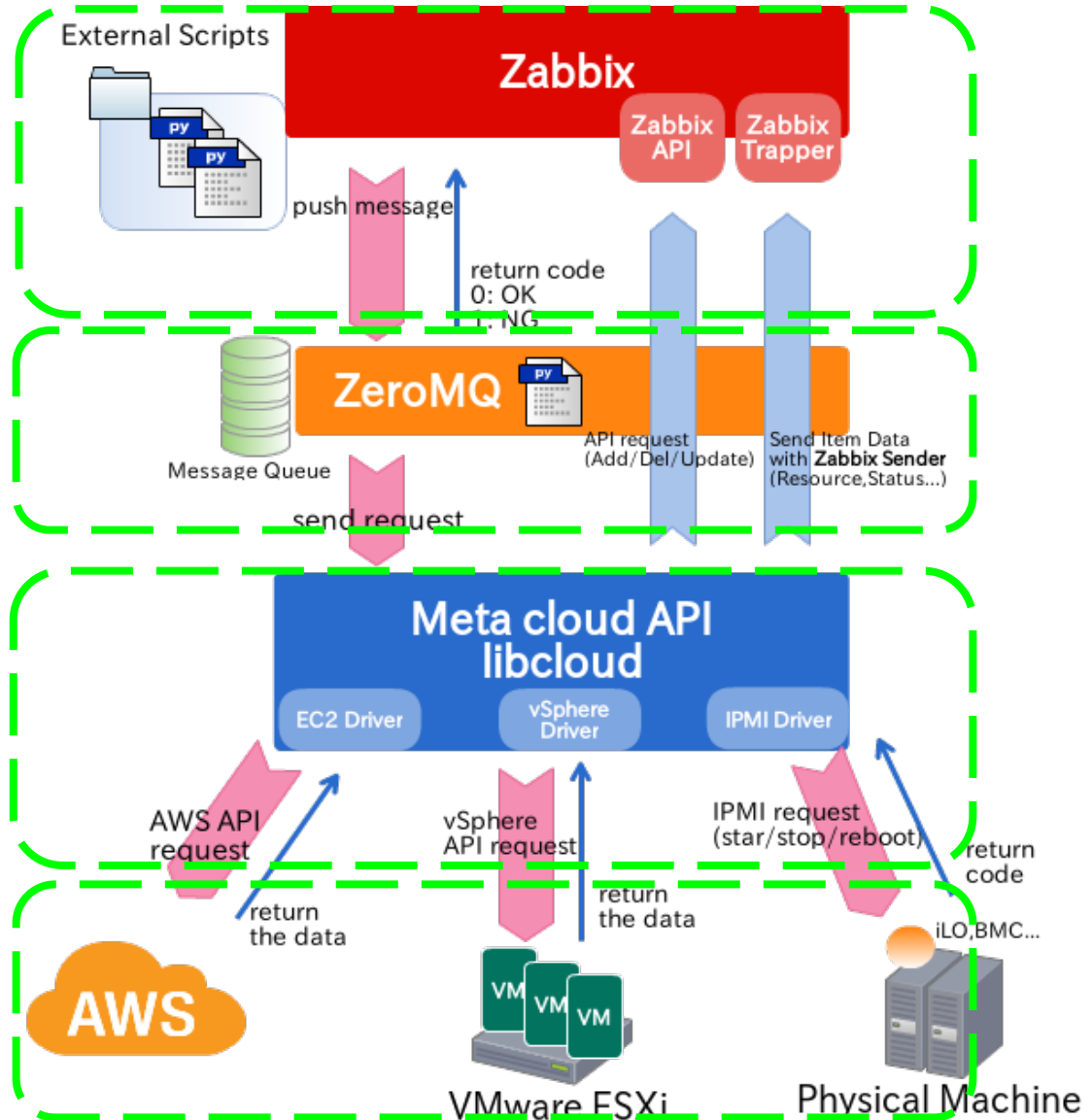**Manual config**

Automatic config

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Architecture

Zabbix layer

Message queueing layer

API Integration layer
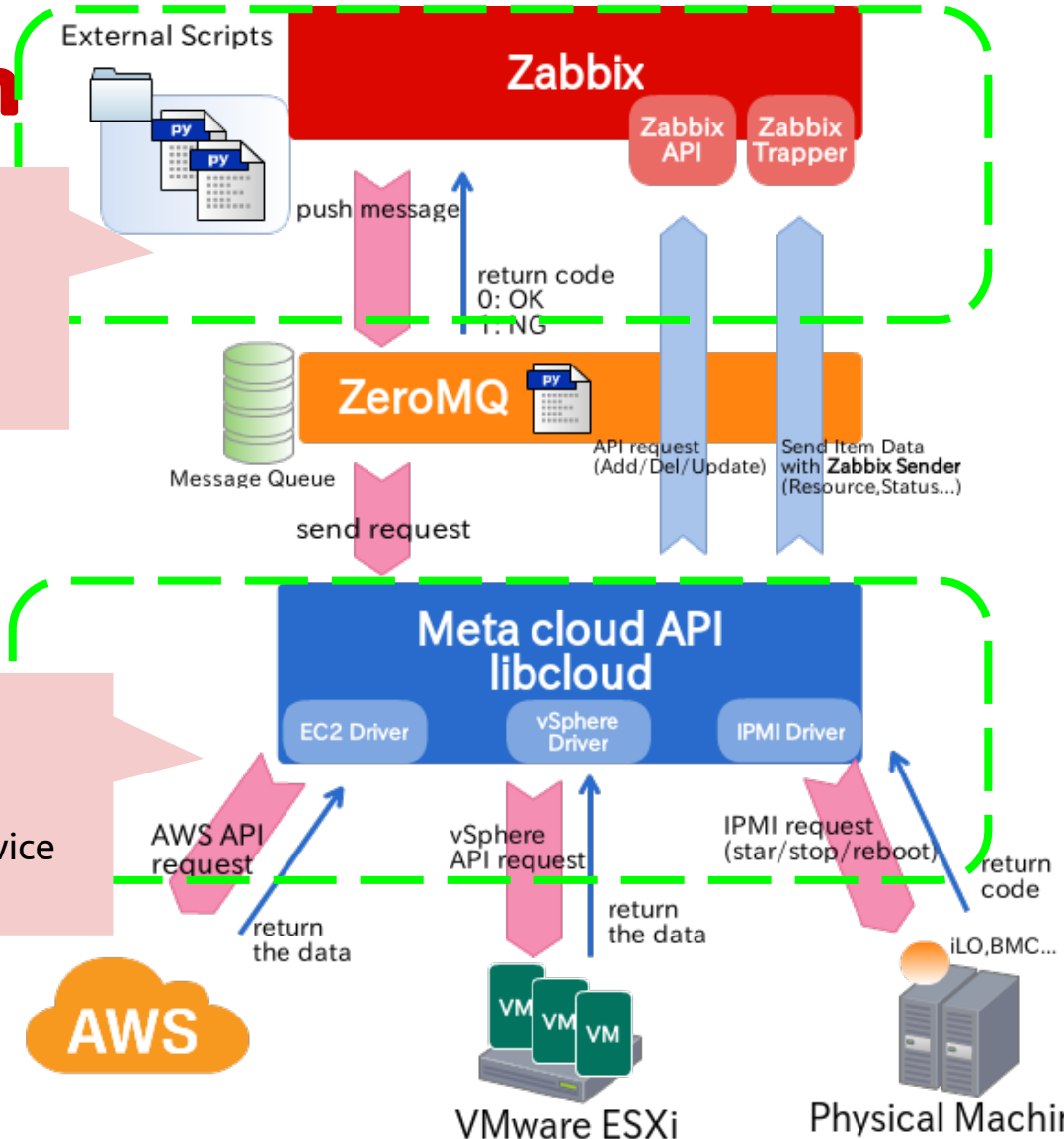
**Target Environments
(They are hybrid ... mixture)**

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For integration

Customized Dashboard
- Check ALL instances here
- Operate ALL instances here

libcloud implemented
- Exclusive APIs abstracted
- Easy to add a new type of cloud service

For automation

The Use of ZabbixAPI and Zabbix Sender
- Zabbix API is used to sync instance lists
- Zabbix Sender is used to register detailed info of instances

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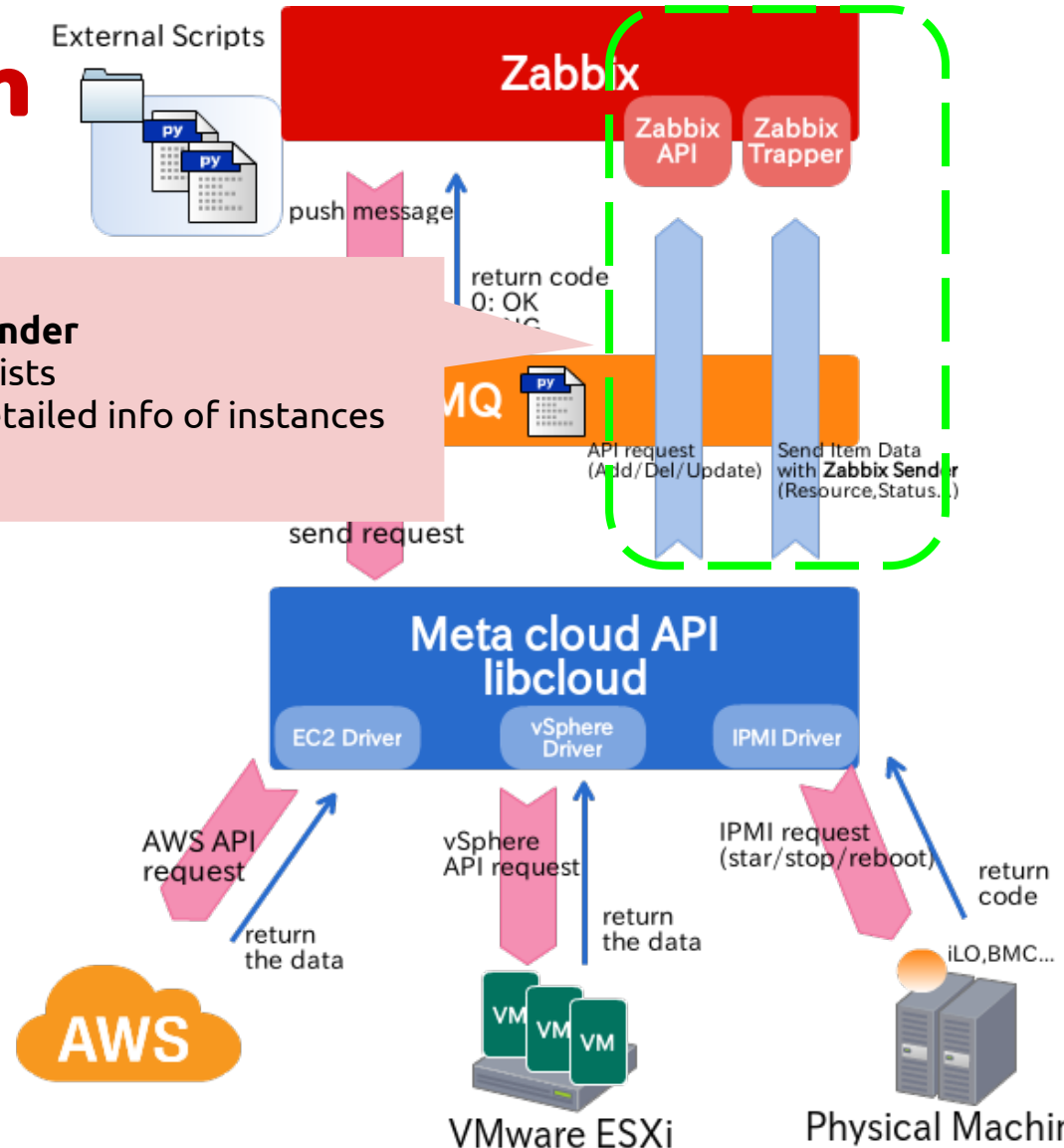
Processing Flow

Auto registration of Host by "Zabbix API"

Flow: 1 → 2 → 3 → 4

Detailed info are stored to Zabbix item by "Zabbix Sender"

Flow: 1 → 2 → 3 → 5

Execute action from Zabbix dashboard

Flow: 1 → 2 → 3

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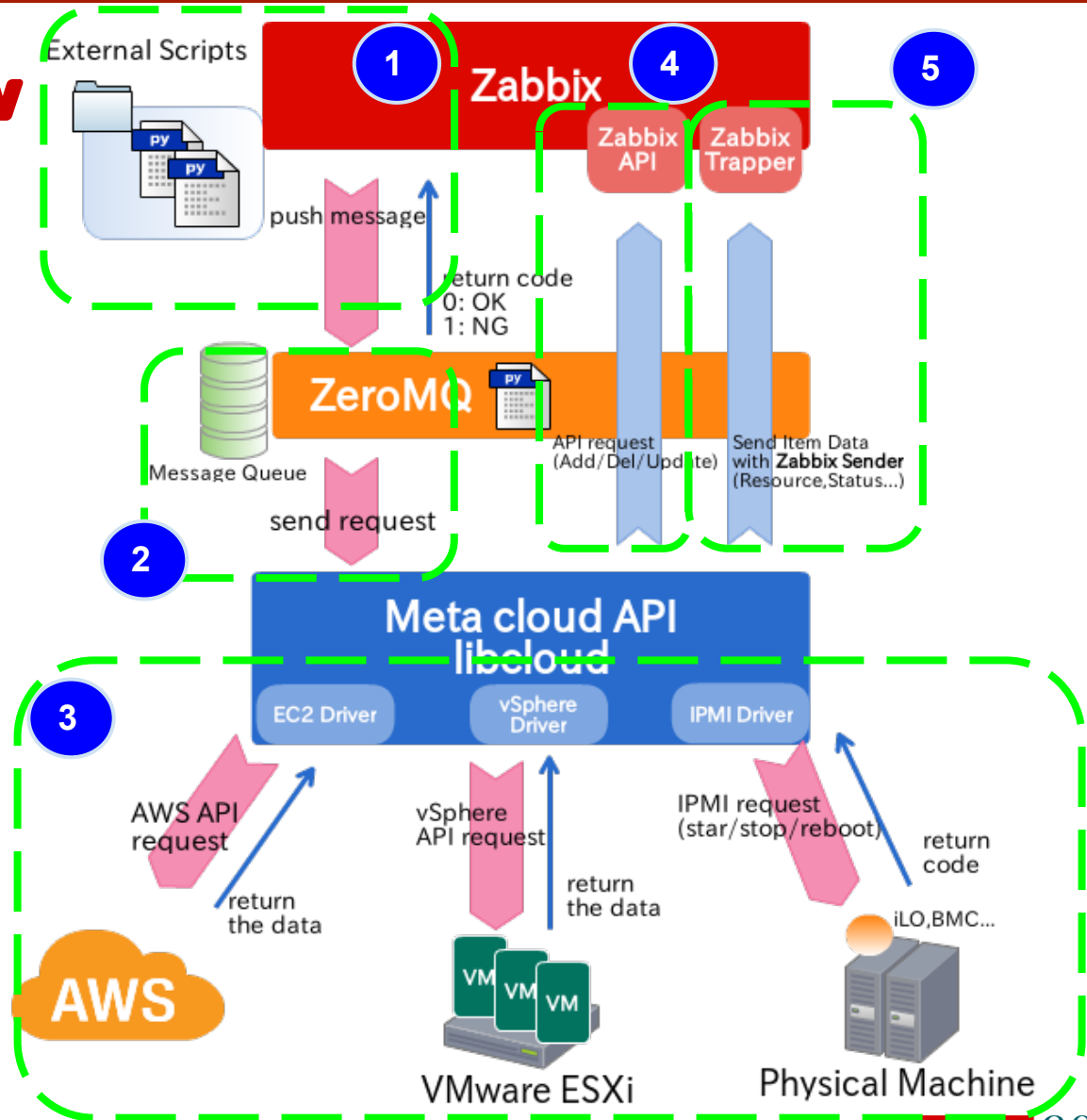
What is libcloud ? - *A Meta Cloud API*

libcloud(http://libcloud.apache.org)

- OSS Meta Cloud API (latest ver. 0.11.1)
- Apache top level project
- Written in Python
- Wrapping many native cloud services API
  AWS,Rackspace,CloudStack,OpenStack...

Support Action
- get node_list
- start instance
- stop instance
- reboot instance
- terminate instance
- create instance
- manage storage
- manage LB
etc...

Install

```
$ pip install apache-libcloud
```

Programming step(python script)

```
from libcloud.compute.types import Provider
from libcloud.compute.providers import get_driver

EC2_ACCESS_ID = 'AWS API Key'
EC2_SECRET_KEY = 'AWS Secret Key'
Driver = get_driver(Provider.EC2)
conn = Driver(EC2_ACCESS_ID, EC2_SECRET_KEY)
nodes = conn.list_nodes()
```

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Demo

- **- You can watch FULL machine list on Zabbix Dashboard**
- **- You can Operate VM on Zabbix Dashboard**
- **- You can connect to ssh,VNC,IPMI console (a feature)**

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Future Prospects – Features to Add

Strong cooperation between Hybrid Environments

- Easy *BACKUP* from machine to machine
- Simple *MIGRATION* from service to service

Strong cooperation between Results and Action

- Complex *JOB EXECUTION* from monitored events to be scheduled

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Questions?

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Thank You!

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