Extending CloudStack Plugins and Events (and *)

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cloud
STACK
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Shape The Cloud Specialists
Blue

apachecloudstack
open source cloud computing

About Me

- Software Architect at ShapeBlue

- Specialise in...

    - 3rd party integrations and features

    - API, Auth and DB layer, SystemVMs and Virtual Router

    - KVM, Build system, Repository, tooling and automation etc.

    - Author: CloudMonkey, SAML2 plugin, API discovery, SystemVM building and exporting using VirtualBox etc.

- CloudStack contributor and committer since 2012

- B.Tech and M.Tech from IIT-BHU

Shape Blue   The Cloud Specialists

About ShapeBlue

"ShapeBlue are expert builders of public & private clouds. They are the leading global Apache CloudStack integrator & consultancy"

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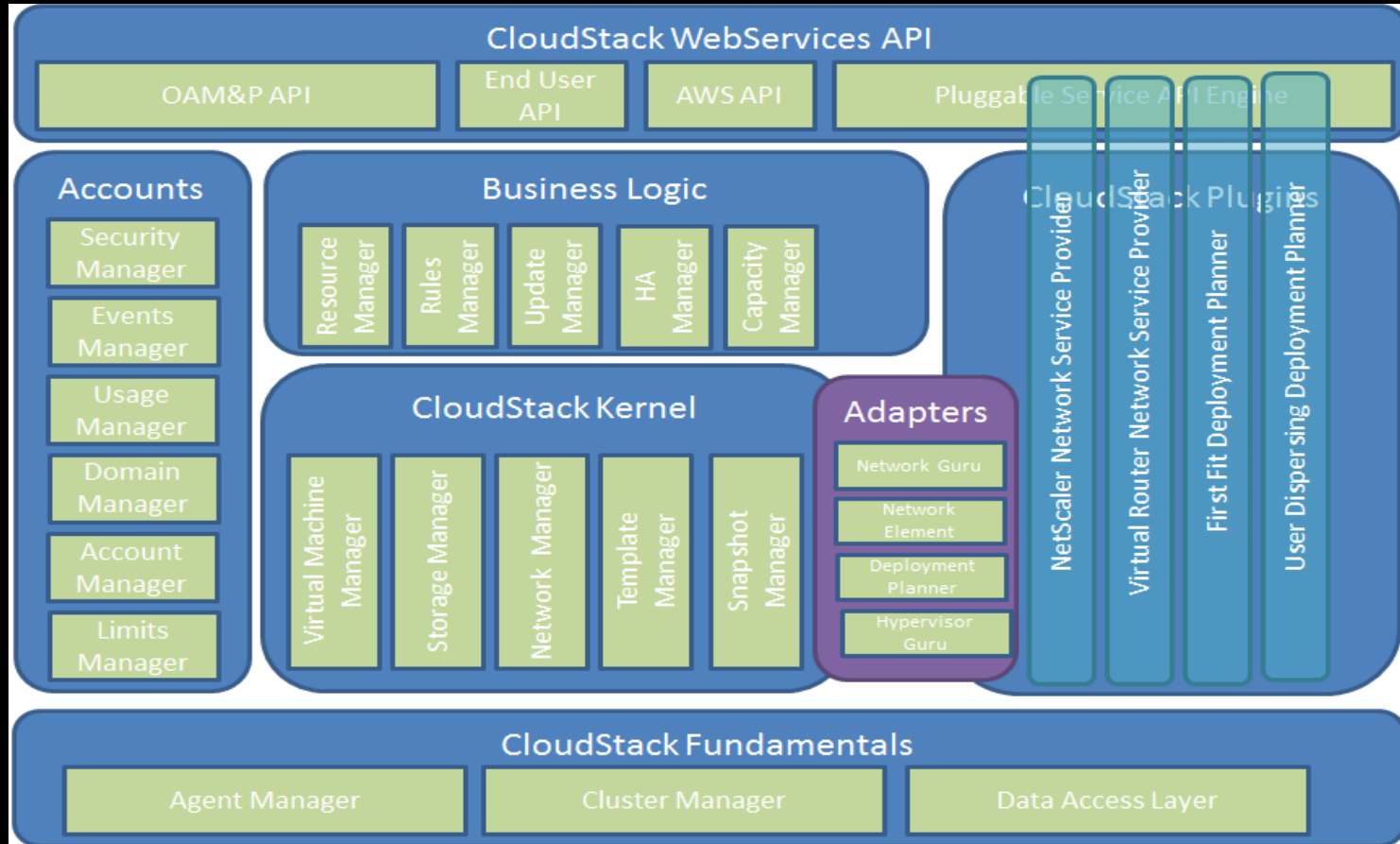Media Group

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Why do I need to extend CloudStack?

- Integrate with 3rd party solutions
- Create new feature and functionality, provide APIs
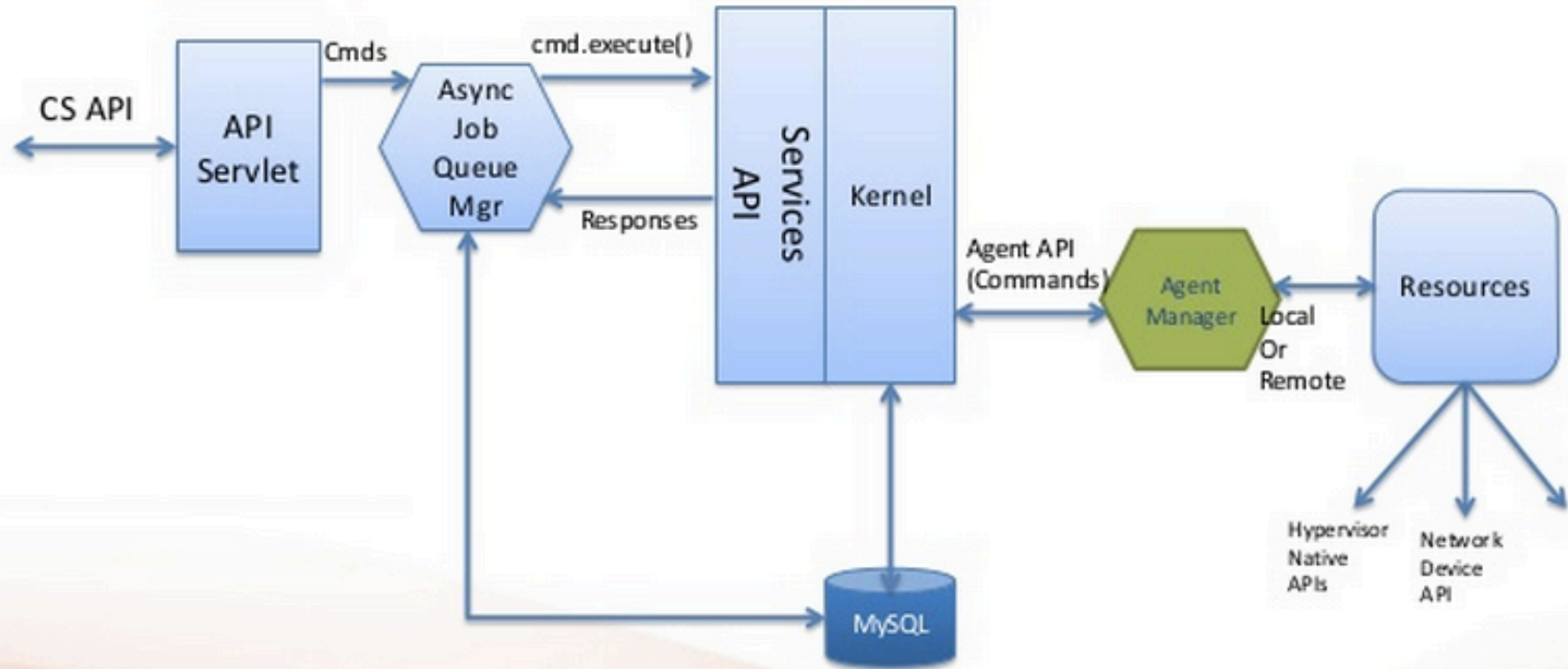- Building solutions on top of CloudStack
- Get things done

Extending CloudStack

- ❖ Plugins
- ❖ Auth Plugins
- ❖ Event consumers (AMQP)
- ❖ Thrift Plugin (RPC servers/clients)
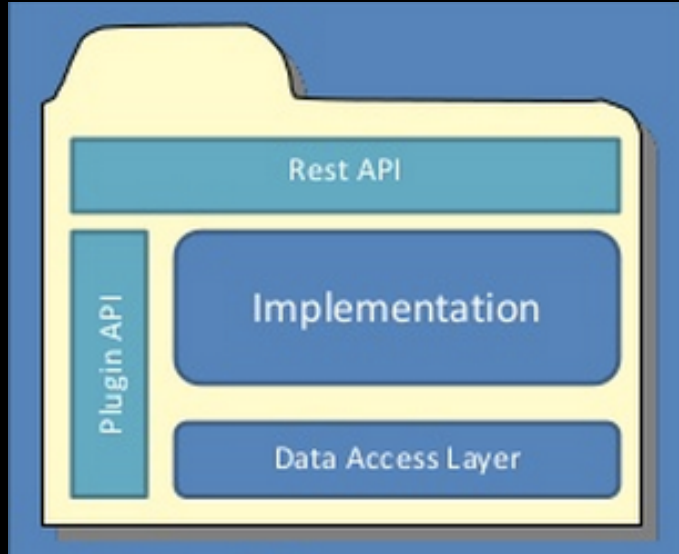- ❖ UI Plugins

CloudStack Architecture

Life of an API call

Anatomy of CloudStack Plugin

How to write a plugin?

Covered in previous CCC talks,

so let's move on ☺

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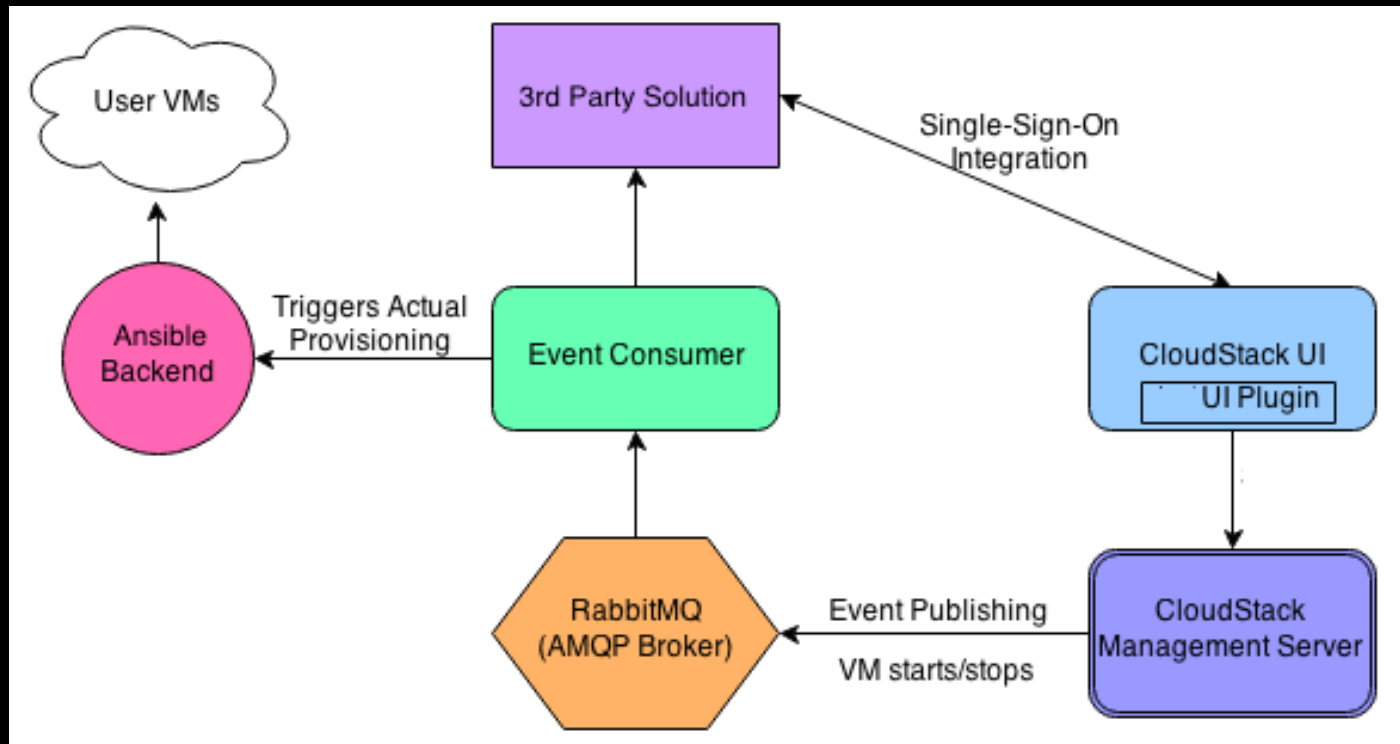
Extending CloudStack: Auth Plugin

❖ Implement a PluggableAPIAuthenticator:
  - List<Class<?>> getAuthCommands();

❖ Implement APIAuthenticator for API endpoints:
  - String authenticate(…);
  - APIAuthenticationType getAPIType();
  - setAuthenticators(List<PluggableAPIAuthenticator>
authenticators);

❖ Endpoint type, APIAuthenticationType:
LOGIN_API, LOGOUT_API

@shapeblue   #ccceu14

Walkthrough & Demo
SAML2 Auth Plugin

Extending CloudStack: AMQP Consumer

- ❖ Consumer CloudStack Events over AMQP event bus

- ❖ Better programming model: Event driven vs. Polling

- ❖ Choice of stack for implementing Event consumers, such as Python, Go, Ruby, PHP, Java, C++ etc.

- ❖ Easy setup: Install RabbitMQ, put a Spring bean config xml file in minimum change required, put a bean in /etc/cloudstack/ management/META-INF/cloudstack/core (http://cloudstack-administration.readthedocs.org/en/latest/ events.html)

Extending CloudStack: AMQP Consumer

Writing a Thrift Plugin (RPC Server/Client)

❖ Apache Thrift – software framework for scalable cross-language service deployment, combines software stack ...

❖ A new idea to develop independent components bound a common interface (thrift definition) written in different languages

❖ Interface bindings are auto-generated so changes can be automatically handled and fixed in many cases

❖ Freedom to choice of stacks, implementation

❖ Demo and walkthrough

Extending CloudStack: UI Plugin

❖ Write a plugin: ui/plugins/CCCPlugin

❖ Enable plugin in ui/plugins/plugins.js

❖ Demo

Thank You

Q&A

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