

CloudStack Track@ApacheCon

October 6th 2022

New Orleans

Daan Hoogland
Social media: either DaanHoogland or dahn
daan.hoogland @shapeblue or gmail.com



agenda

- Sponsor slides
- History
- Community
- What is ApacheCloudStack
- News.

cloudstack



Sponsor slide



- ShapeBlue Ltd.
- “The CloudStack Company”
- Employee Owned Company
 - looking for extra owners
- mini multinational
 - now and in the past
- Big clients , ...
 - Telcos
 - public cloud providers
 - Enterprises

- Europe
 - Belgium
 - Bulgaria
 - Czechia/2
 - England
 - France/2
 - the Netherlands
 - Serbia
- India
- South America
 - Brasil/2
 - Uruguay



colt



თბილისის მერია
TBLISI CITY HALL



Ascenty



Evry



sage pay

ISP

Klarna



core desktop
Business Cloud Synergy

CSG
Tomorrow's Technology Today

nodilex
IaaS Cloud Computing

interoute
from the ground to the cloud

M5 INTERNET
HOSTING

ASG

TOMTOM®

eSkyCity

pacific
interactive



SURFBOXX
IT-SOLUTIONS



TEAM CYMRU

Virtela™
An NTT Communications Company

SCHUBERG
PHILIS

SUNGARD®
AVAILABILITY
SERVICES™

paragus
INTERACTIVE LTD.

USS

wateen
وَجَاهَةٌ

your it
GLOBAL

cloudera

Vonage



Guzool

sky

FOUR Js
the Power of Simplicity

Penn
UNIVERSITY OF PENNSYLVANIA

IP SOFT

PADDYPOWER.

SWISS TXT

inps

CISCO

@CloudStack @GilesSirett

cloudstack
open source cloud computing

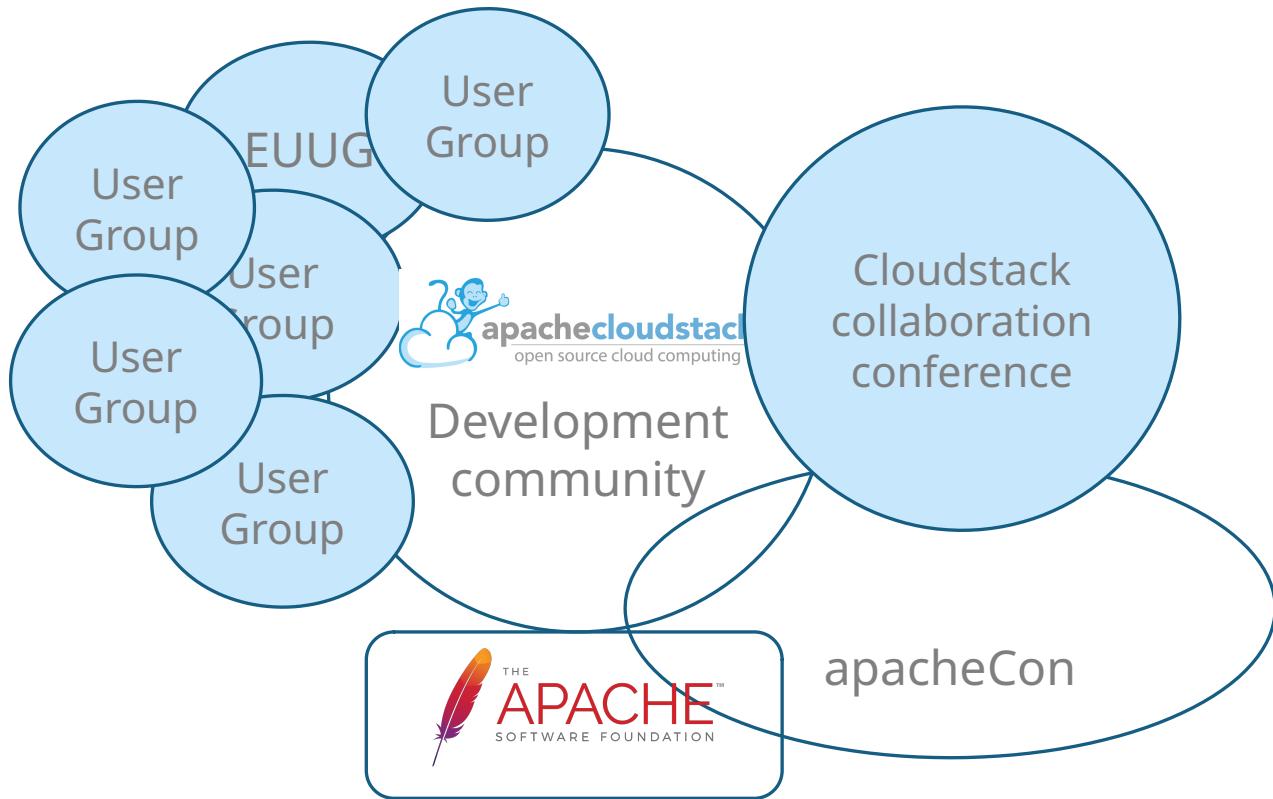
* CloudStack history

- 2008 - Vmops launches (rebrands Cloud.com)
- April 2010 - Cloud.com Releases CloudStack under GPLv3
- July 2011 - Citrix acquires CloudStack
- April 2012 - CloudStack donated to Apache Software Foundation
- November 2012 - First Apache CloudStack Release
- March 2013 - CloudStack graduates from ASF Incubator
- 2014 - Majority of committers are not from Citrix
- 2016 - Citrix leave the project
- 2014-2022 Lots of releases, adoption continues to grow, feature list as well
-

What is the CloudStack community

- * Collaborative environment for:
 - * All things Apache CloudStack
 - * Related tech: ecosystem products, hypervisors, storage, etc.
- * Online and Meet regularly (twice a year globally and then local chapters)
- * Conferences:
 - * Technical deep-dives, issues & best practice
 - * Case studies & user stories
 - * To showcase complementary technologies
 - * To share ideas & problems with other users
- *
-  @CloudStack







- CloudStack European User Group
- CloudStack User Group Germany
- Geneva CloudStack User Group
- CloudStack - Romania
- Australian CloudStack User Group
- CloudStack Brazil User Group
- Vancouver CloudStack Meetup
- Japan CloudStack User Group
- CloudStack India Bangalore Chapter
- CloudStack India Hyderabad Chapter
- CloudStack Pune Meetup
- CloudStack SF Bay Area Users Group
- CloudStack NYC User Group
- CloudStack Boston User Group
- CloudStack DC and NoVA User Group
- *

* Cloudstack “known users”



amdocs



- * Cloudstack *known users"



A N O L I M



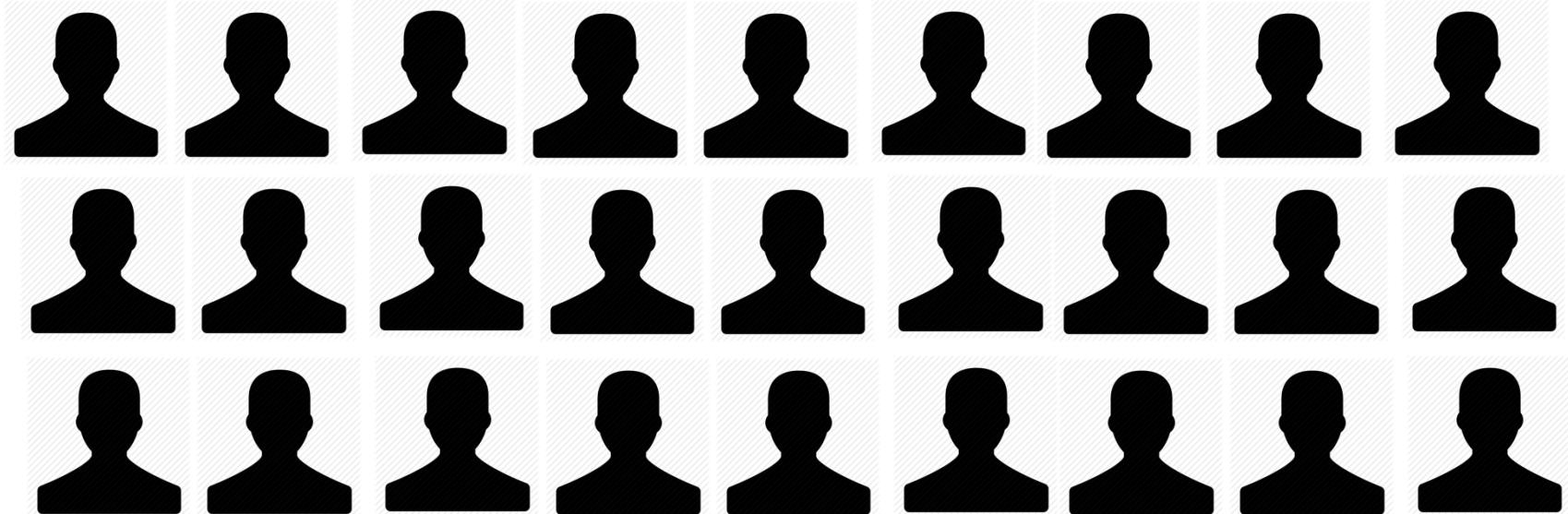
CONTEGIX®



SCHUBERG PHILIS

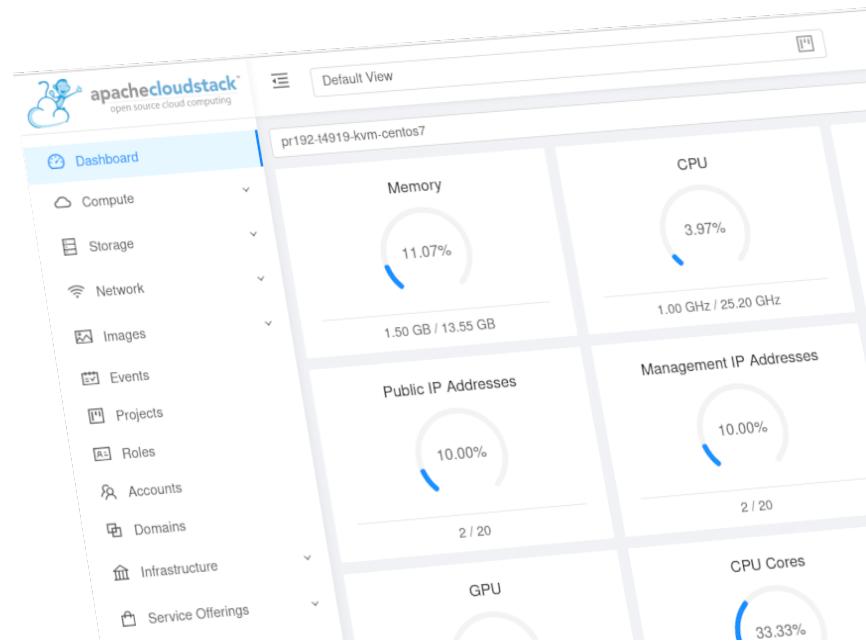


* CloudStack *known* users

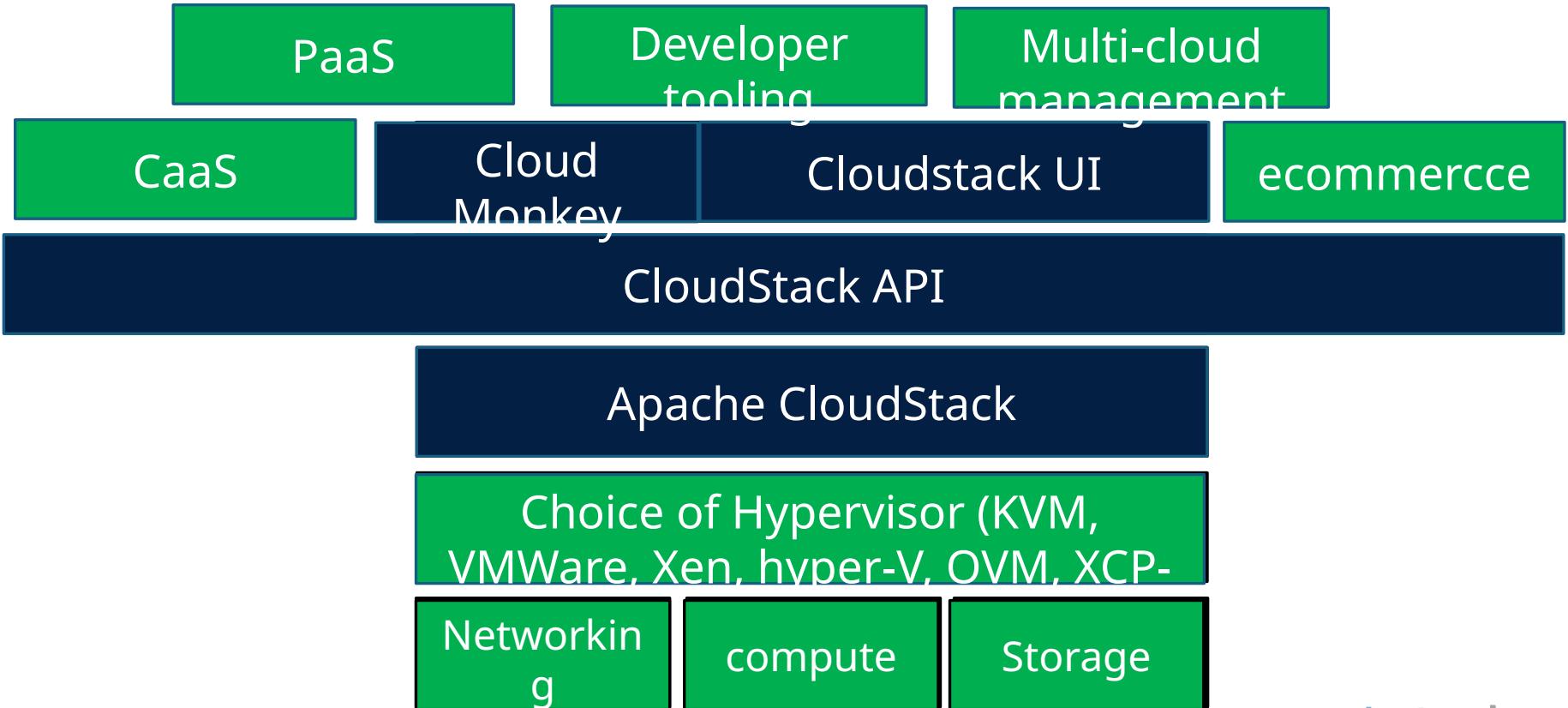


- * What is CloudStack? A thingy to do stuff.

- * *Apache CloudStack is a scalable, multi-tenant, open-source, purpose-built, cloud orchestration platform for delivering turnkey Infrastructure-as-a-Service clouds*

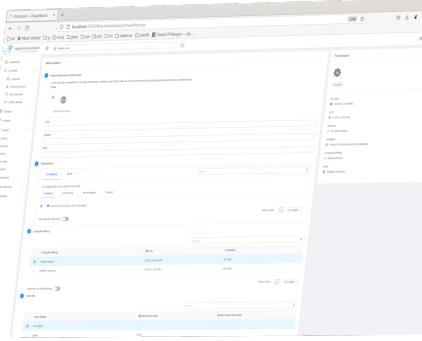


* How to build an IaaS cloud



* Key cloudStack features

- Broad & deep Hypervisor support
 - XenServer, KVM, VMware, OracleVM, Hyper-V, XCP-ng
- Enterprise grade tenant Virtual Networking model
- Scalable architecture
 - Support thousands of hosts and virtual machine guests
 - Largest known production cloud 35k+ physical hosts
- High availability
 - Configurations that provide automatic failover for virtual machines
- Choice of interfaces
 - Web UI, command line, REST-based API



* Simple UI

The screenshot shows the Apache CloudStack Summary interface. The left sidebar navigation includes sections for Project, Dash, Instances, Configuration, Affinity, Storage, Networks, Temp, Events, Projects, and Accounts. The Infrastructure section is expanded, showing sub-options like Summary, Zones, Pods, Clusters, Hosts, Primary storage, Secondary storage, System VMs, Virtual routers, CPU sockets, Management servers, Alerts, DB/Usage server, Service offerings, Configuration, and Tools. The main content area displays a grid of infrastructure metrics:

Zones	Pods	Clusters	Hosts
1	1	2	4
Primary storage	Secondary storage	System VMs	Virtual routers
4	1	2	0
CPU sockets	Management servers	Alerts	Internal LB
0	1	4	0
DB/Usage server			

At the bottom, it says "Licensed under the Apache License, Version 2.0. CloudStack 4.17.2.0-SNAPSHOT Report issue".

* API examples

- * Examples of Cloudstack Rest API:
 - * List VMs for all users:
 - * <http://localhost:5050/client/api/?listall=true&command=listVirtualMachines>
 - * List all my templates:
 - * <http://localhost:5050/client/api/?listall=true&templatefilter=all&command=listTemplates>
 - * Create new network "bla"
 - * <http://localhost:5050/client/api/?zoneId=38101e2e-3814-4082-b2be-fa7f80111506&name=bla&displayText=bla&networkOfferingId=cde91081-6e31-44c2-a7f2-fd391c10485c&command=createNetwork>
- * Note: for simplicity, these commands are being run over an unauthenticated port (8096)
 - this is not recommended for production use and would usually be disabled

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 - * Create a new VM attached to net "bla"
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 - * "zoneid": "38101e2e-3814-4082-b2be-fa7f80111506",
 - * "templateid": "857b8039-441a-11ed-8b3d-e884a5ebaa69",
 - * "startvm": "true",
 - * "serviceofferingid": "f196c74d-5599-42f7-9d43-1034a4d012f6",
 - * "iptonetworklist[0].networkid": "236e90b1-07d0-4a4f-8e8e-b0127d107d9e",
 - * "name": "blob",
 - * "displayname": "blob"
 - * ^ post

* Cloudmonkey CLI

```
$ cmk list templates templatefilter=all filter=name,id,templatetype
{
  "count": 2,
  "template": [
    {
      "id": "857b4bea-441a-11ed-8b3d-e884a5ebaa69",
      "name": "SystemVM Template (simulator)",
      "templatetype": "SYSTEM"
    },
    {
      "id": "857b8039-441a-11ed-8b3d-e884a5ebaa69",
      "name": "CentOS 5.6 (64-bit) no GUI (Simulator)",
      "templatetype": "BUILTIN"
    }
  ]
}
$
```

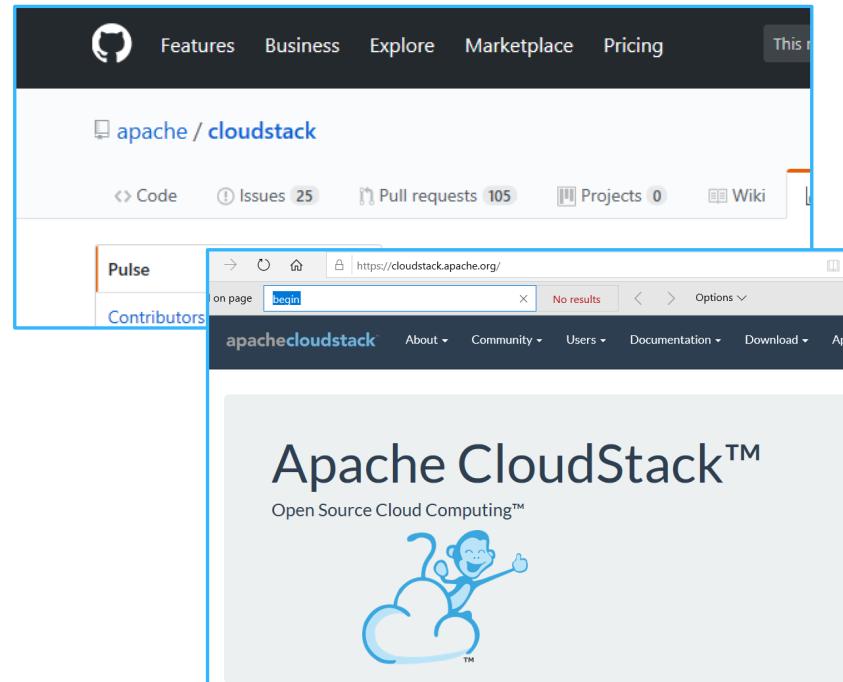
- * CloudStack today

- 3-4 releases per year
- Widespread production deployment
 - Public cloud providers
 - Private cloud use-cases
- LTS releases
- Diverse mostly user* driven developer community.....

* users in this case means mostly companies using ACS

* CloudStack today

- Governed by Apache Software Foundation
- Ca. 200 project committers (130 on the cleaned list)
- Diverse PMC
- Last 4 weeks (to 25 February)
 - 300 mailing list msgs
(not commit related)
 - 70 mailing list contributors
 - 11 merged pull requests
 - 948 forks
 - ??? downloads
- Lots of meetups & events



CloudStack News

Releases

- * 4.17.1 released (September 2022)
 - * 4.17.x is an LTS branch
 - * c. 200 fixes and anhancements 4.17.0.1 (last sec. release)
- * 4.18.0 Release in process (planned first RC end Oct.)
 - * 4.18 will be an LTS branch
 - * Should be in November (end of)



*CloudStack 4.18 Release - Headline features

- 47 closed PRs
- 34 open Prs
- 11 closed issues
- 32 open issues

*CloudStack 4.18 Release - Headline features

- Emc networker b&r
- Feature Request: Ability to define IP address beside of choosing VMs in Static NAT,...
- L2 Guest Networks: exclusive VLAN range
- Configure NFS version for Primary Storage
- CloudStack API does not allow to set domain for templates via "createTemplate" nor...
- feat: Kubernetes multiple worker groups
- Improve Guest OS additions and mappings
- User from domain can't deploy VM in dedicated to that domain pod
- TCP load balancer ability to set custom connect/client/server
- Support for new Feature: Clone a Virtual Machine (#4818)
- UI: Keyboard label shortcut
- New feature: Add retry option for VMs in Error state/Option to retry failed VM instan...
- Add volume group handling
- Feat/global vm search
- KVM automatically adds ballooning
- Can't add Netscaler VPX
- Add Support IPAM object to Allow Load Balancer or Port-forward map to floating IP...
- Integrate Tungsten Fabric with CloudStack
- Support to resize uploaded volume during attach
- Allow upload volume with custom size
- Quota custom tariffs
- Advanced Zone with SG: Add L2 networks and shared networks with Account/Project...
- Improve global settings UI to be more intuitive/logical
- Configurable MTU for VR
- UI: Upgrade ant-design-vue to version 3.x
- Guest OS hypervisor mapping improvements
- volume import and export when using swift as secondary storage
- Enable live volume migration between StorPool's primary storages



Already in:

- UserData as first class resource
- Prometheus exporter enhancement
- Volume encryption feature
- Allow option of exposing VM domain info via instance metadata
- Resource reservation framework
- Console access enhancements
- api,server: custom dns for guest network
- VM stats history visualization
- Chinese language pack
- Add usermode interface option to Libvirt Domain XML builder
- Fix spelling
- List service offerings without host tags when filtering VM
- Improved login time
- add global setting to allow parallel execution on vmware
- Reserve memory for host
- HAProxy based load balancer customization
- Faster SystemVM Template Builds
- Make DB upgrade queries idempotent for convenience age:2years_plus

*CloudStack 4.18 Release - Hoped for Headline features

- Backup and Recovery Framework plugin for Networker
- CloudStack Kubernetes API: CAPI
- Volume encryption
- Tungsten fabric integration
- Autoscale VMs
- Userdata as first class citizen
- Oh, and finally.....

- * Cloudstack Backup and Recovery Framework
- Cloudstack Backup and Recovery Framework
 - In since 4.14
 - Modular framework
 - Can exploit any 3rd party backup platform
 - Provider created for Veeam

* Cloudstack Backup and Recovery Framework

Specifically:

- Support for:
 - Operator created ‘policy based’ backups (RPOs)
 - Scheduled backups (similar to snapshot scheduling)
 - Ad hoc backups
- Backups as first class citizens
- ‘In-place’ restoration of entire VM including data disks
- Restoration of VM backup after original VM is destroyed
- Restoration of individual VM volumes (can then be attached to another VM)
- Full integration into the CloudStack API, UI, usage service (recording both protected and on-disk data metrics)

* Cloudstack Backup and Recovery Framework

'Policy Based' Backups

-
- `listBackupPolices external=true`
Returns 'template' jobs.
- `importBackupPolicy` Creates a policy
(with a name and description) in
CloudStack and maps it to a
Veeam template job.
ie.
GOLD – 6hr RPO
SILVER – 24hr RPO
BRONZE – 7 day RPO

The screenshot shows the Veeam Backup & Replication software interface. The top navigation bar includes tabs for HOME, VIEW, and various backup operations like Backup, Replication, Job, Copy, Restore, Import, Failover, Plan, and Restore. Below the navigation is a search bar with the placeholder "Type in an object name to search for". The main area is titled "HOME" and contains a tree view of backup categories: Jobs, Backups, and Last 24 Hours. Under "Jobs", "Backup" is selected. A table lists backup policies with columns for NAME, TYPE, OBJECTS, and STATUS. The policies listed are ZONE1-Silver, ZONE1-Platinum, ZONE1-GOLD, ZONE1-Bronze, i-2-81-VM-CSBKP-9fdca2f..., and i-2-80-VM-CSBKP-8e15f7c6... All entries show a status of "Stopped".

NAME	TYPE	OBJECTS	STATUS
ZONE1-Silver	VMware Back...	1	Stopped
ZONE1-Platinum	VMware Back...	1	Stopped
ZONE1-GOLD	VMware Back...	1	Stopped
ZONE1-Bronze	VMware Back...	1	Stopped
i-2-81-VM-CSBKP-9fdca2f...	VMware Back...	2	Stopped
i-2-80-VM-CSBKP-8e15f7c6...	VMware Back...	2	Stopped

* Cloudstack Backup and Recovery Framework

'Ad-hoc' & Scheduled Backups

- CloudStack will send command to carry out an ad-hoc run of the policy based job or create one as required.
- Ad-hoc and scheduled jobs will be driven by CloudStack
- One VM to one Veeam job mapping allows for simpler accounting and unified incremental backups

The screenshot shows the Veeam Backup and Replication software interface. The top navigation bar includes tabs for HOME, VIEW, and various backup operations like Backup Job, Replication Job, Copy Job, etc. Below the navigation is a search bar with placeholder text "Type in an object name to search for". The main area is titled "HOME" and displays a tree view of backup configurations. Under "Jobs", there is a selected item "Backup". Under "Backups", there are entries for "Disk" and "Disk (imported)". Under "Last 24 Hours", there is a "Failed" section. To the right, a table lists backup details:

NAME	TYPE	OBJECTS	STATUS
ZONE1-Silver	VMware Back...	1	Stopped
ZONE1-Platinum	VMware Back...	1	Stopped
ZONE1-GOLD	VMware Back...	1	Stopped
ZONE1-Bronze	VMware Back...	1	Stopped
i-2-81-VM-CSBKP-9fdca2f...	VMware Back...	2	Stopped
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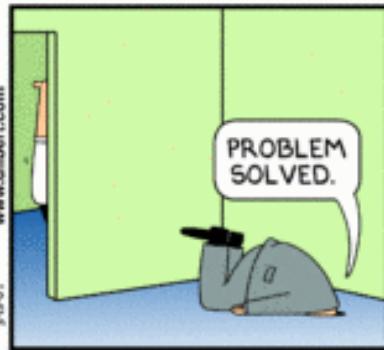
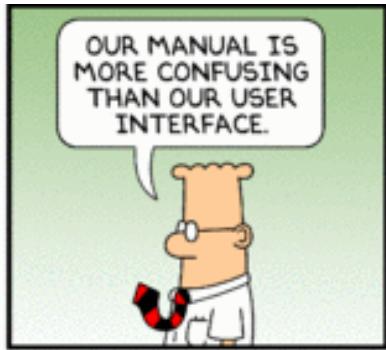
* CloudStack 4.18 Release - Headline feature

- **CloudStack Kubernetes Service**
 - Allows easy creation of CaaS service on top of Cloudstack
 - A plugin to create and manage Kubernetes cluster
 - CoreOS templates for nodes, kubeadm for cluster provisioning
 - Offline installation of k8s and docker binaries on cluster nodes for selected k8s version via ISO (uploaded by admin)
 - Gracefully scale up or scale down
 - Access kube config for cluster for accessing k8s dashboard
 - Delete cluster while removing nodes and k8s service

- **CAPI**
 - **A CloudStack KAPI**
 - **Should work on “old” versions**



* Upcoming Stack 4.1 features timeline feature



CloudStack Events

- * Now, here, ongoing
 - * At apachecon
- * CCC
 - * Sofia 14 – 16 November 2022
 - * Registration open – hubilo:
<https://www.cloudstackcollab.org/>
- * CSEUG:
 - * Plan is in februari/march 2023, London
 - * Registration usually on Eventbrite

~~CloudStack Collaboration Conference 2020~~

- * New Orleans
- * ~~28 September – 2 October~~
- * More Information

- * <http://cloudstackcollab.org>
- * <http://apachecon.org>



Apachecon 2022

CloudStack Collaboration Conference 2022

- * New Orleans (USA)
- * 3 October – 6 October
- * More Information
 - * <http://apachecon.org>
- * Sofia (Bulgaria)
- * hybrid
- * 14 November – 16 November
- * More Information
 - * <http://cloudstackcollab.org>



- * If you're new: join the Users@ mailing list
- * Get your organisation to be public about their use of ACS
- * Get on the "known user" list*
- * Offer to do a case study with PMC/ASF
- * Go and talk about it !

*

*

*Known user list: <http://cloudstack.apache.org/survey.html>



CloudStack Track@ApacheCon

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Who am I? Not technical ops, don't ask me any detailed techie questions!

agenda

- Sponsor slides
- History
- Community
- What is ApacheCloudStack
- News.



Sponsor slide



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- “The CloudStack Company”
- Employee Owned Company
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@CloudStack @GilesSirett





@CloudStack @GilesSirett

* CloudStack history

- 2008 – Vmops launches (rebrands Cloud.com)
- April 2010 – Cloud.com Releases CloudStack under GPLv3
- July 2011 - Citrix acquires CloudStack
- April 2012 - CloudStack donated to Apache Software Foundation
- November 2012 – First Apache CloudStack Release
- March 2013 - CloudStack graduates from ASF Incubator
- 2014 – Majority of committers are not from Citrix
- 2016 – Citrix leave the project
- 2014-2022 Lots of releases, adoption continues to grow, feature list as well
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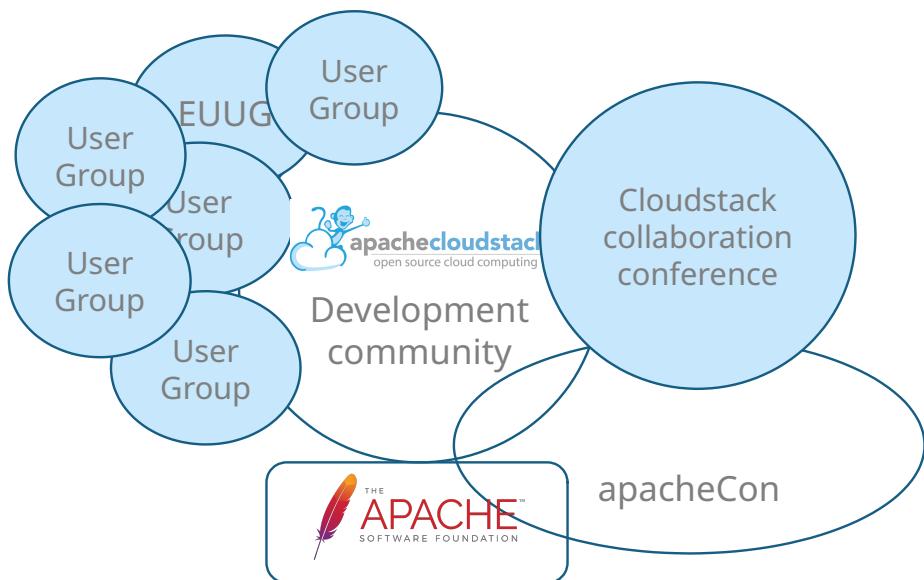
Over the eras different companies have been dominant in the community

What is the CloudStack community

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 - * All things Apache CloudStack
 - * Related tech: ecosystem products, hypervisors, storage, etc.
- * Online and Meet regularly (twice a year globally and then local chapters)
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 @CloudStack





@CloudStack

cloudstack



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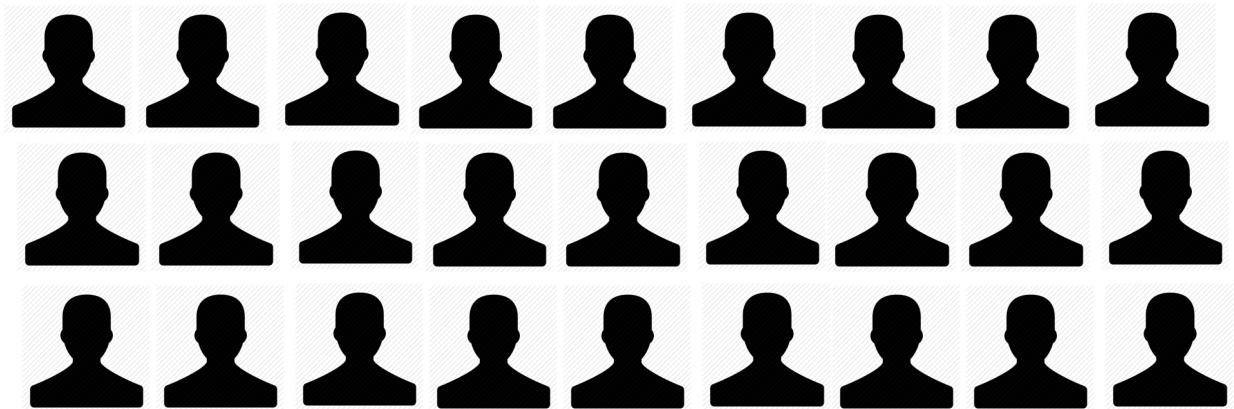
* Cloudstack “known users”



* Cloudstack *known users*



* CloudStack *known* users

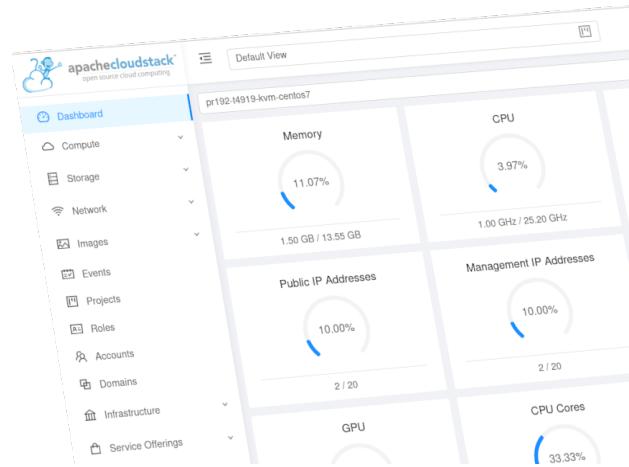


 @CloudStack

cloudstack


- * What is CloudStack? A thingy to do stuff.

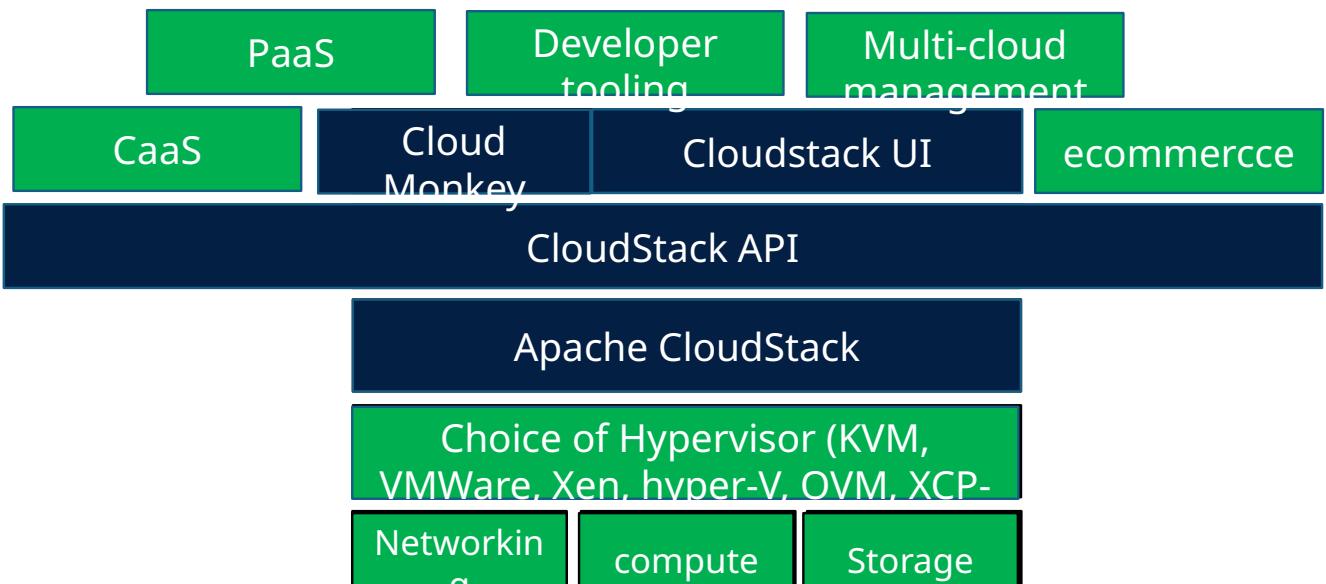
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cloudstack 

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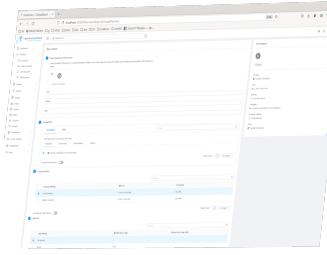


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- High availability
 - Configurations that provide automatic failover for virtual machines
- Choice of interfaces
 - Web UI, command line, REST-based API



 @CloudStack



* Simple UI

The screenshot shows the Apache CloudStack web interface with a dark blue header bar. The title bar says "Summary - CloudStack" and the URL is "localhost:5050/#/infrasummary". The top right corner shows "110%" and icons for refresh, search, and user. The user "Admin User" is logged in.

The left sidebar has a "Project: Def" dropdown and several categories: Dash, Insta, Cont, Affini, Stora, Netw, Temp, Event, Projec, Acco. Under "Cont", "Summary" is selected and highlighted in blue. Other options include Zones, Roles, Accounts, Domains, Infrastructure, Primary storage, Secondary storage, System VMs, Virtual routers, Internal LB, Management servers, CPU sockets, DBUsage server, Alerts, Service offerings, Configuration, and Tools.

The main content area is titled "Default view" and shows a grid of summary statistics:

Zones	Pods	Clusters	Hosts
1	1	2	4
Primary storage	Secondary storage	System VMs	Virtual routers
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At the bottom of the main content area, there is a note: "Licensed under the Apache License, Version 2.0. CloudStack 4.17.2.0-SNAPSHOT Report issue".

Replace image

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Replace “screenshot”

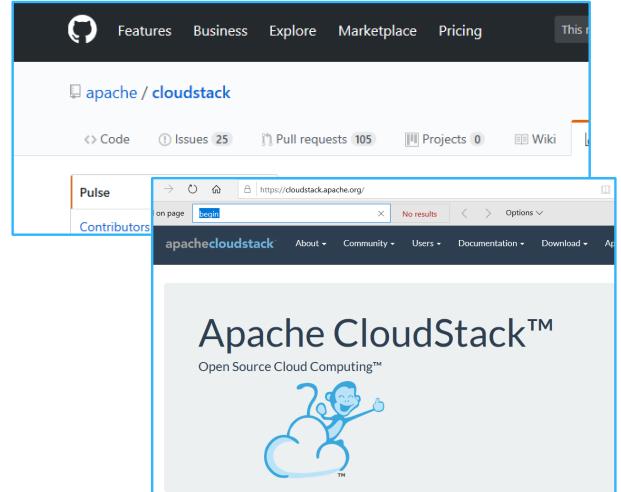
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Replace stats

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- *

1. Since the last event in Sofia (March) we've been busy...
2. What is LTS?

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The Cloud Specialists



* Still in development, we extended the original planned design, lowered the priority due to other things, and it's still not GA – but will be for 4.14!

CloudStack Kubernetes Service = evolution of CloudStack Container Service from few years ago

A plugin for CloudStack to create, manage Kubernetes cluster through CloudStack management server API and UI, disabled by default.

*CloudStack 4.18 Release - Headline features

- Emc networker b&r
- Feature Request: Ability to define IP address beside of choosing VMs in Static NAT,...
- L2 Guest Networks: exclusive VLAN range
- Configure NFS version for Primary Storage
- CloudStack API does not allow to set domain for templates via "createTemplate" nor...
feat: Kubernetes multiple worker groups
- Improve Guest OS additions and mappings
- User from domain can't deploy VM in dedicated to that domain pod
- TCP load balancer ability to set custom connect/client/server
- Support for new Feature: Clone a Virtual Machine (#4818)
- UI: Keyboard label shortcut
- New feature: Add retry option for VMs in Error state/Option to retry failed VM instan...
- Add volume group handling
- Feat/global vm search
- KVM automatically adds ballooning
- Can't add Netscaler VPX
- Add Support IPAM object to Allow Load Balancer or Port-forward map to floating IP...
- Integrate Tungsten Fabric with CloudStack
- Support to resize uploaded volume during attach
- Allow upload volume with custom size
- Quota custom tariffs
- Advanced Zone with SG: Add L2 networks and shared networks with Account/Project...
- Improve global settings UI to be more intuitive/logical
- Configurable MTU for VR
- UI: Upgrade ant-design-vue to version 3.x
- Guest OS hypervisor mapping improvements
- volume import and export when using swift as secondary storage
- Enable live volume migration between StorPool's primary storages



Already in:

- UserData as first class resource
- Prometheus exporter enhancement
- Volume encryption feature
- Allow option of exposing VM domain info via instance metadata
- Resource reservation framework
- Console access enhancements
- api.server: custom dns for guest network
- VM stats history visualization
- Chinese language pack
- Add usermode interface option to Libvirt Domain XML builder
- Fix spelling
- List service offerings without host tags when filtering VM
- Improved login time
- add global setting to allow parallel execution on vmware
- Reserve memory for host
- HAproxy based load balancer customization
- Faster SystemVM Template Builds
- Make DB upgrade queries idempotent for convenience age:2years_plus



* Still in development, we extended the original planned design, lowered the priority due to other things, and it's still not GA – but will be for 4.14!

CloudStack Kubernetes Service = evolution of CloudStack Container Service from few years ago

A plugin for CloudStack to create, manage Kubernetes cluster through CloudStack management server API and UI, disabled by default.

*CloudStack 4.18 Release - Hoped for Headline features

- Backup and Recovery Framework plugin for Networker
- CloudStack Kubernetes API: CAPI
- Volume encryption
- Tungsten fabric integration
- Autoscale VMs
- Userdata as first class citizen
- Oh, and finally.....



The Cloud Specialists



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CloudStack Kubernetes Service = evolution of CloudStack Container Service from few years ago

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- * Cloudstack Backup and Recovery Framework

- Cloudstack Backup and Recovery Framework
 - In since 4.14
 - Modular framework
 - Can exploit any 3rd party backup platform
 - Provider created for Veeam



The Cloud Specialists



* Cloudstack Backup and Recovery Framework

Specifically:

- Support for:
 - Operator created ‘policy based’ backups (RPOs)
 - Scheduled backups (similar to snapshot scheduling)
 - Ad hoc backups
- Backups as first class citizens
- ‘In-place’ restoration of entire VM including data disks
- Restoration of VM backup after original VM is destroyed
- Restoration of individual VM volumes (can then be attached to another VM)
- Full integration into the CloudStack API, UI, usage service (recording both protected and on-disk data metrics)



The Cloud Specialists



Support for different policies that dictate different RPOs

Scheduled and ad-hoc backups

Restoration of full VMs or individual volumes

Restoration of the deleted VM

Full usage-server integration, so no orphaned VMs (restored but not visible in usage)

* Cloudstack Backup and Recovery Framework

'Policy Based' Backups

- listBackupPolices external=true
Returns 'template' jobs.
- importBackupPolicy Creates a policy (with a name and description) in CloudStack and maps it to a Veeam template job.
ie.
GOLD – 6hr RPO
SILVER – 24hr RPO
BRONZE – 7 day RPO

The screenshot shows the Veeam Backup & Replication interface. The top navigation bar includes links for HOME, VIEW, and various backup operations like Backup, Replication, Job, Copy, Restore, Import, Failover, Plan, and Backup. Below the navigation is a search bar with the placeholder "Type in an object name to search for". The main area is titled "HOME" and displays a tree view of backup categories: Jobs, Backups, Disk, and Last 24 Hours. Under "Jobs", there is a "Backup" node. To the right is a table listing backup policies:

NAME	TYPE	OBJECTS	STATUS
ZONE1-Silver	VMware Back...	1	Stopped
ZONE1-Platinum	VMware Back...	1	Stopped
ZONE1-GOLD	VMware Back...	1	Stopped
ZONE1-Bronze	VMware Back...	1	Stopped
i-2-81-VM-CSBKP-9fdcfaf...	VMware Back...	2	Stopped
i-2-80-VM-CSBKP-8e15f7c6...	VMware Back...	2	Stopped



Blue The Cloud Specialists



Different RPOs – since space consumed on storage will different greatly

* Cloudstack Backup and Recovery Framework

'Ad-hoc' & Scheduled Backups

- CloudStack will send command to carry out an ad-hoc run of the policy based job or create one as required.
- Ad-hoc and scheduled jobs will be driven by CloudStack
- One VM to one Veeam job mapping allows for simpler accounting and unified incremental backups

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NAME	TYPE	OBJECTS	STATUS
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i-2-80-VM-CSBKP-8e15f7c...	VMware Back...	2	Stopped



Blue The Cloud Specialists



Jobs are driven by ACS, but executed by backup provider i.e. Veeam

* CloudStack 4.18 Release - Headline feature

- **CloudStack Kubernetes Service**
Allows easy creation of CaaS service on top of Cloudstack
A plugin to create and manage Kubernetes cluster
 - CoreOS templates for nodes, kubeadm for cluster provisioning
 - Offline installation of k8s and docker images on cluster nodes for selected k8s version via ISO (uploaded by admin)
 - Gracefully scale up or scale down
 - Access kube.config for cluster for accessing k8s dashboard
 - Delete cluster while removing nodes and k8s service



• CAPI

- **A CloudStack KAPI**
- **Should work on “old” versions**



CKS – cloudstack Kubernetes service

CKP – cloudstack Kubernetes provider

A Cloud Controller Manager to facilitate Kubernetes deployments on Cloudstack.
Based on the old Cloudstack provider in Kubernetes that will be removed soon

Future idea is to integrate CKS and CKP for seamless deployment and management
Based on the old Cloudstack provider in Kubernetes that will be removed soon.

* Upcoming stacks 4.18 release - integrated feature



The Cloud Specialists

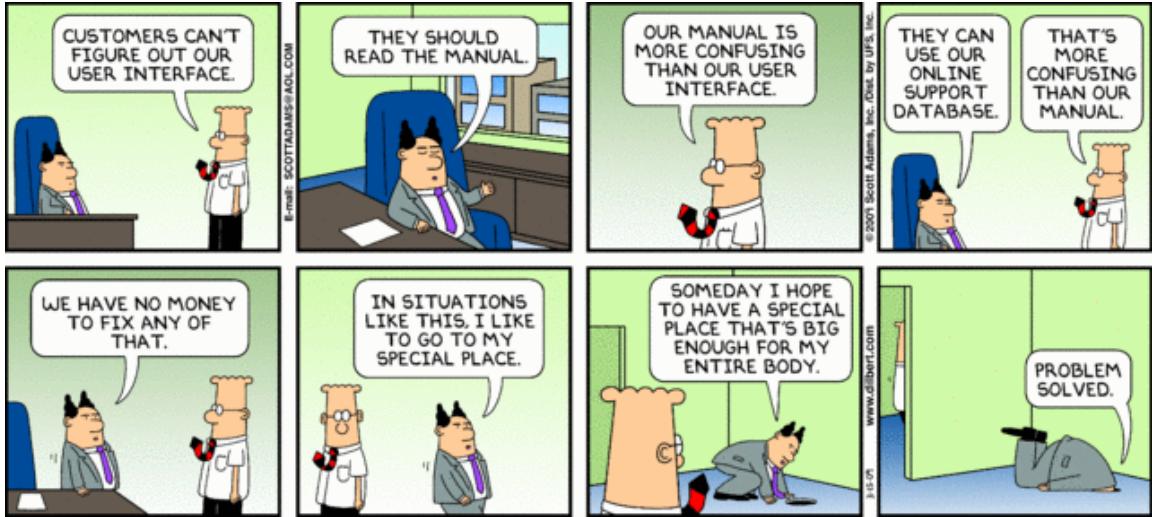


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CloudStack Events

- * Now, here, ongoing
 - * At apachecon
- * CCC
 - * Sofia 14 – 16 November 2022
 - * Registration open – hubilo:
<https://www.cloudstackcollab.org/>
- * CSEUG:
 - * Plan is in februari/march 2023, London
 - * Registration usually on Eventbrite

Also ApacheCon Europe is now (in Berlin)!

~~CloudStack Collaboration Conference 2020~~

- * New Orleans
- * ~~28 September – 2 October~~
- * More Information
 - * <http://cloudstackcollab.org>
 - * <http://apachecon.org>
- *
- *



Back in Las Vegas – 1st ever CCC was at the Venetian in 2012

Apachecon 2022

CloudStack Collaboration Conference 2022

- * New Orleans (USA)
- * 3 October – 6 October
- * More Information
 - * <http://apachecon.org>
- * Sofia (Bulgaria)
- * hybrid
- * 14 November – 16 November
- * More Information
 - * <http://cloudstackcollab.org>



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- * If you're new: join the Users@ mailing list
- * Get your organisation to be public about their use of ACS
- * Get on the "known user" list*
- * Offer to do a case study with PMC/ASF
- * Go and talk about it !

*

*

*Known user list: <http://cloudstack.apache.org/survey.html>

