



# Hybrid cloud cost management

## Challenges, opportunities, and best practices

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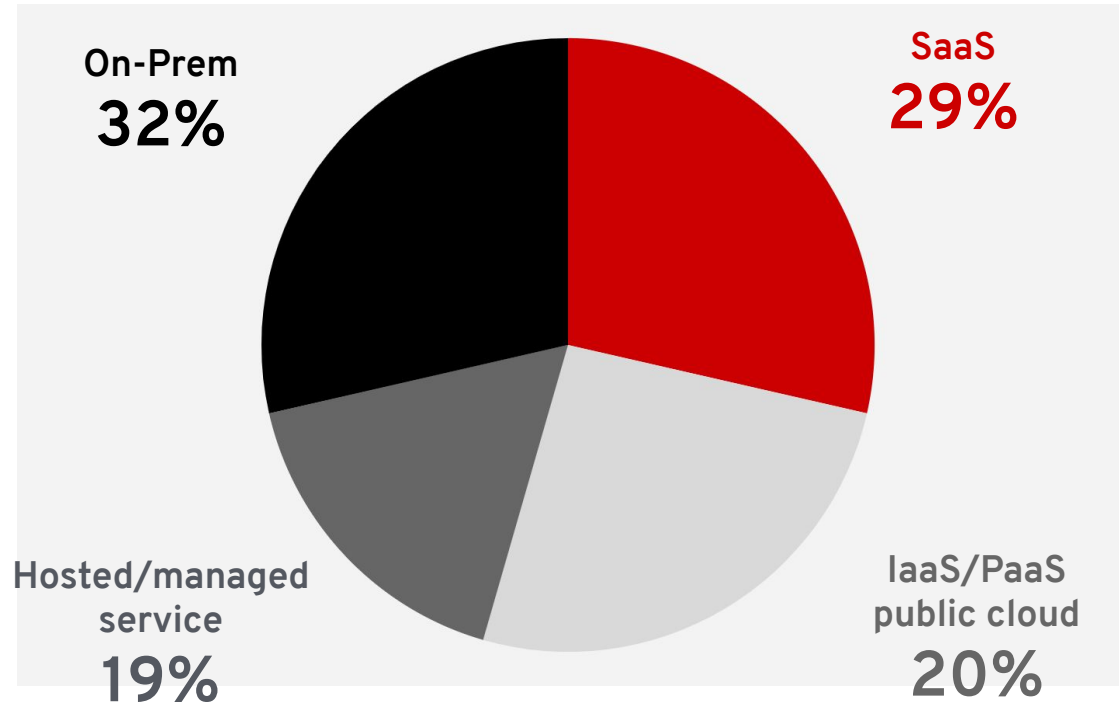
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# ENTERPRISE SOFTWARE DEPLOYMENT FORECAST 2020



**HYBRID  
CLOUD IS  
THE NORM**



SOURCE: 451 Research, Voice of the Enterprise: Cloud, Hosting and Managed Services, Workloads and Key Projects 2018

# HYBRID CLOUD DOMINATES ENTERPRISE IT STRATEGIES

HYBRID CLOUD IS THE GOAL:

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**58%**

of enterprise are moving to hybrid IT environments that integrate on premises systems and off premises cloud and hosted environments

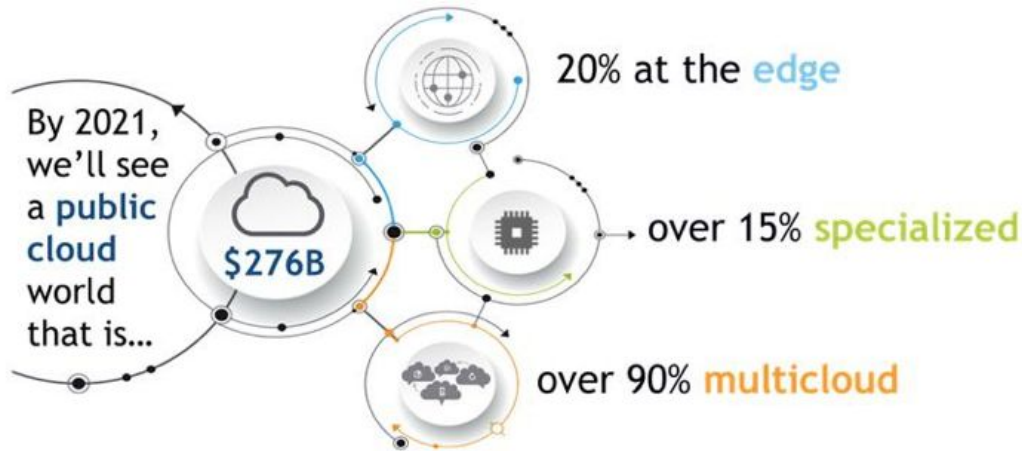
SAAS GROWTH EXPECTED:

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**32%**

of businesses expect SaaS to be the largest area of growth in IT spending in 2018

# THE CLOUD IS EVOLVING



**TOTAL MARKET CAGR  
2016-2021 (IaaS, PaaS,  
SaaS)**

**+21,9%**

Source: IDC, Worldwide and Regional Public IT Cloud Services Forecast, 2018–2021, #US43625818

# MULTICLOUD CHALLENGE

"As multicloud architectures become mainstream, enterprise customers need better cloud management software and SaaS options to help them automate cloud operations, share IT resources, match workloads with appropriate cloud features, and control cloud costs and governance. "

*Source: Mary Johnston Turner, IDC research vice president for Cloud Management.*

## How do I centralize functions across disparate clouds?



Consumption



Policy &  
Governance



Cost Management &  
Billing



Workload  
Placement

# RED HAT HYBRID CLOUD MANAGEMENT

Govern, automate, and manage multicloud environments

## CLOUDFORMS

On-premises IT Lifecycle  
Automation:

Policy driven **private cloud**  
provisioning and Day 2  
operations

Capacity Planning



## CLOUD MANAGEMENT SERVICES FOR HYBRID

### CATALOG

Unified multicloud catalog

Easy consumption of cloud  
IT services

Frictionless governance of  
content to users

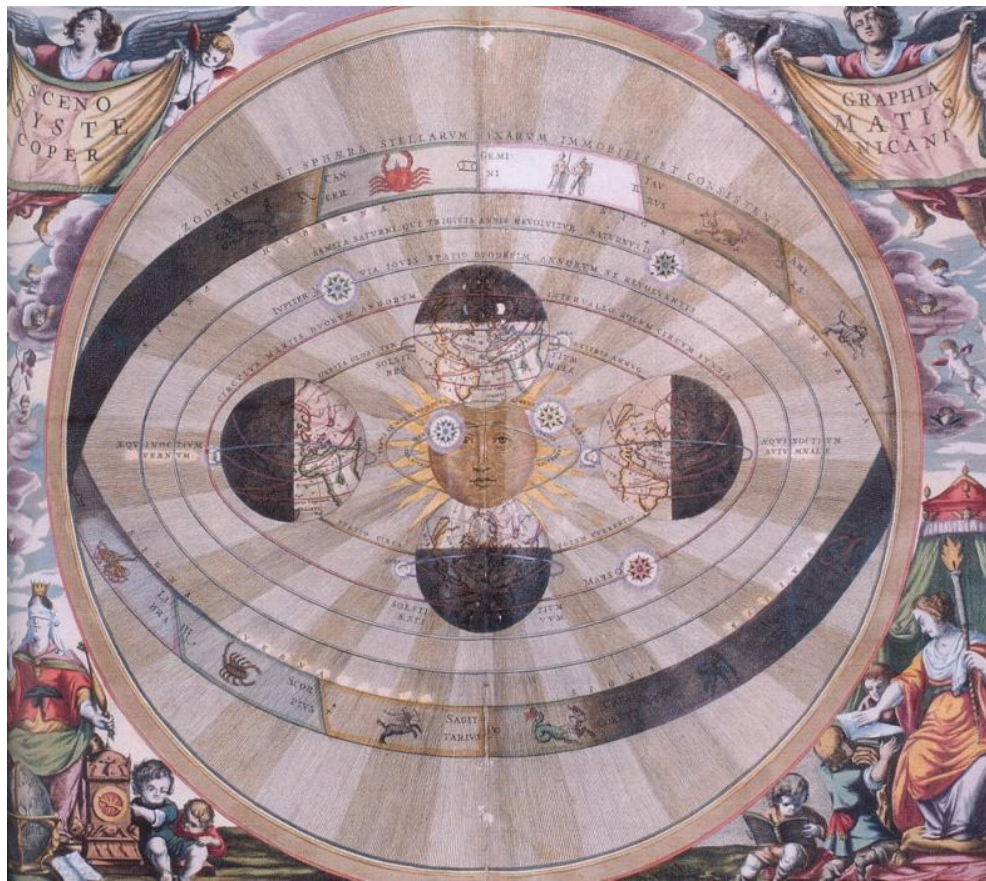
### COST MANAGEMENT

Multicloud cost  
transparency

Cost optimization and  
**analytics** for rightsizing,  
consumption and  
forecasting

Effectively communicate  
**cost** with consumers and  
improve trust

# COST VISIBILITY

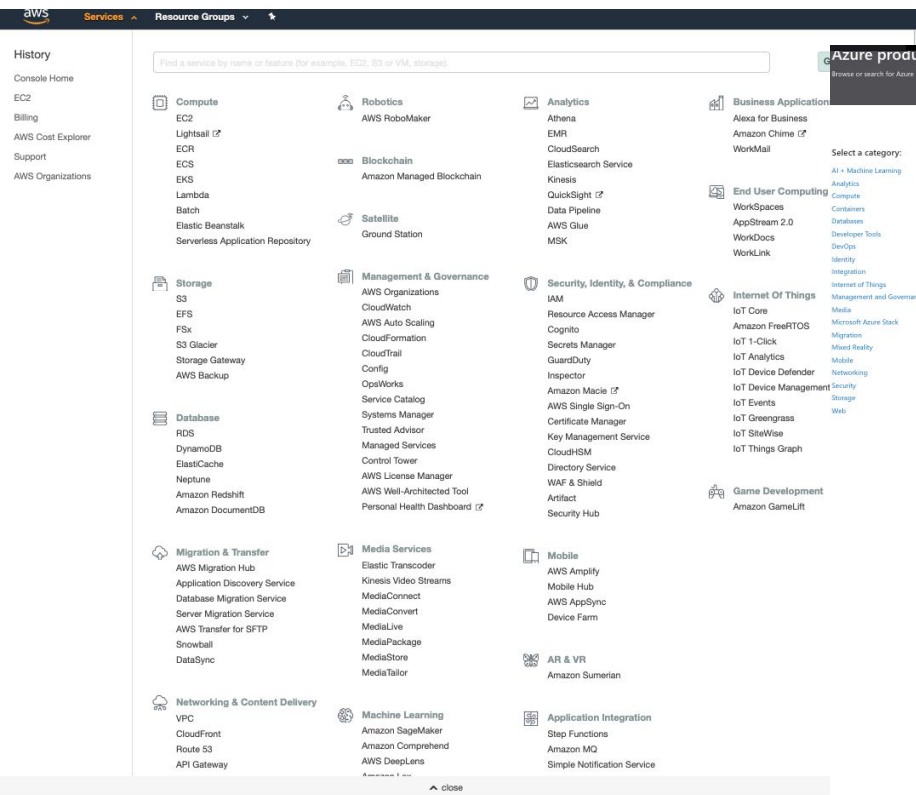








# SERVICES SPRAWL



Azure products

Select a category:

- AI + Machine Learning
- Analytics
- Compute
- Databases
- Developer Tools
- DevOps
- Identity
- Integration
- Internet of Things
- Management and Governance
- Media
- Microsoft Azure Stack
- Migration
- Mixed Reality
- Mobile
- Networking
- Security
- Storage
- Web

Search products

## AI + Machine Learning

**Azure Bot Service**

Intelligent, serverless bot service that scales on demand

**Azure Search**

Fully managed search as a service

**Bing Custom Search**

Ready to use all new, commercial-grade search tool that lets you deliver the results you want

**Bing Image Search**

Search for images and get comprehensive results

**Bing Spell Check**

Detect and correct spelling mistakes in your app

**Bing Visual Search**

Get rich insights to help build compelling image applications on the device of your choice

**Cognitive Services**

Add smart API capabilities to enable contextual interactions

**Content Moderator**

Automated image, text, and video moderation

**Custom Vision**

Easily customize your own state-of-the-art computer vision models for your unique use case

**Face**

Detect, identify, analyze, organize, and tag faces in photos

**Machine Learning Studio**

Easily build, deploy, and manage predictive analytics solutions

**Translator Speech**

Easily conduct real-time speech translation with a simple REST API call

**Linguistic Analysis**

Simplify complex language concepts and parse text with the Linguistic Analyst API

**Speaker Recognition**

Use speech to identify and verify individual speakers

**Speech to Text**

The Speech to Text API is part of Azure Cognitive Services Speech Services

**Text to Speech**

Convert text to speech to create more natural, accessible interfaces

**Video Indexer**

Unleash video insights

**Anomaly Detector**

Find and predict anomalous behavior in your data

**Azure Databricks**

Fast, easy, and collaborative Apache Spark-based analytics platform

**Bing Autosuggest**

Give your app intelligent autosuggest options for searches

**Bing Entity Search**

Enrich your experiences by identifying and augmenting entity information from the web

**Bing News Search**

Search for news and get comprehensive results

**Bing Video Search**

Search for videos and get comprehensive results

**Bing Web Search**

Get enhanced search details from billions of web documents

**Computer Vision**

Quickly accessible information from images

**Custom Speech**

Overcome speech recognition barriers like speaking style, background noise, and vocabulary

**Data Science Virtual Machines**

Rich pre-configured environment for AI development

**Azure Machine Learning service**

Bring AI to everyone with an end-to-end, scalable, trusted platform with experimentation and model management

**Microsoft Genomics**

Power genome sequencing & research insights

**Language Understanding**

Teach your apps to understand commands from your users

**QnA Maker**

Distill information into conversational, easy-to-navigate answers

**Speech Translation**

Easily integrate real-time speech translation to your app

**Text Analytics**

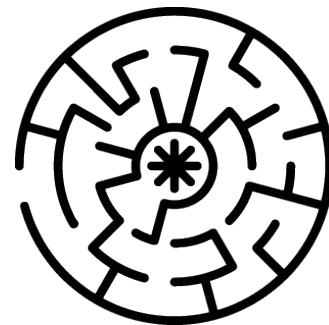
Text Analytics evaluates sentiment and topics to understand what users want

**Translator Text**

Easily conduct machine translation with a simple REST API call

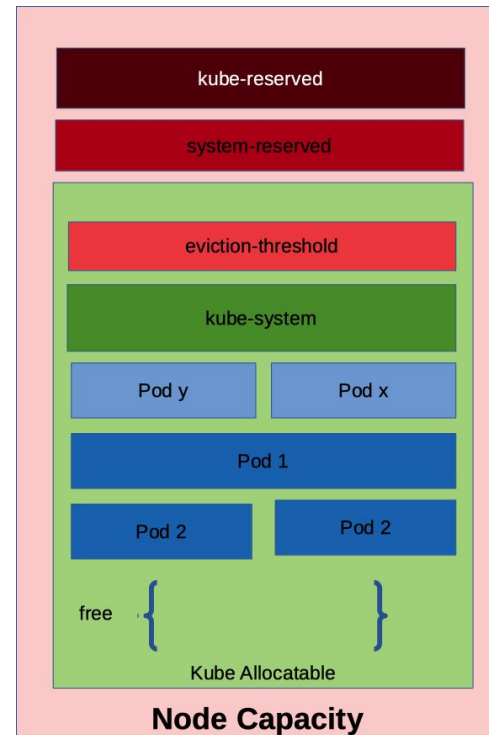
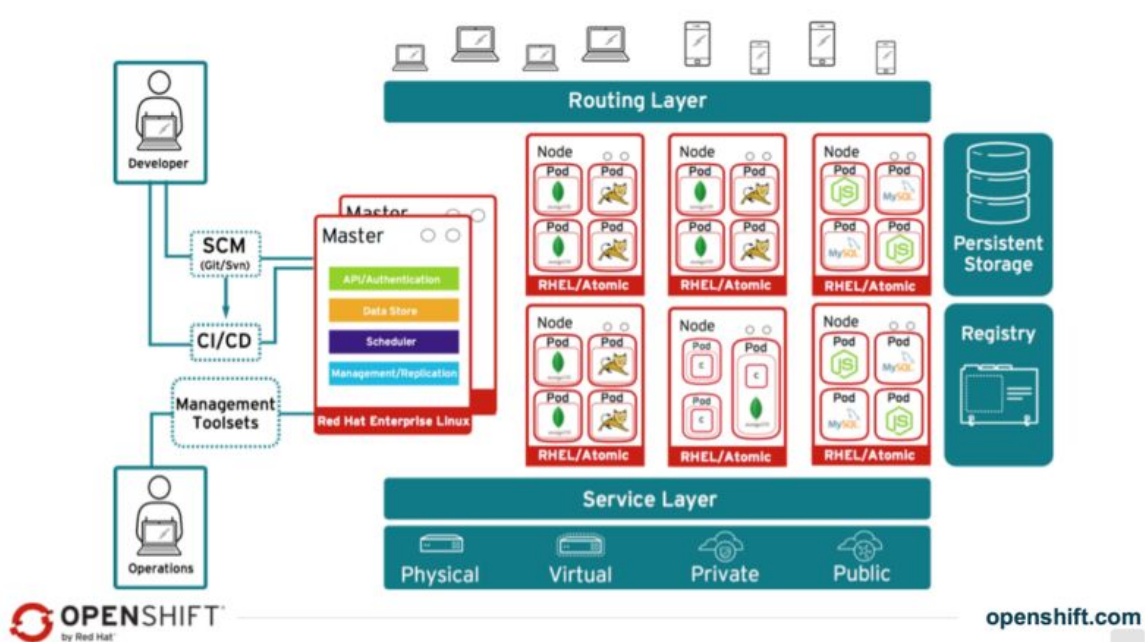
**Azure Kinect DK**

Build computer vision and speech models using a developer kit with advanced AI sensors

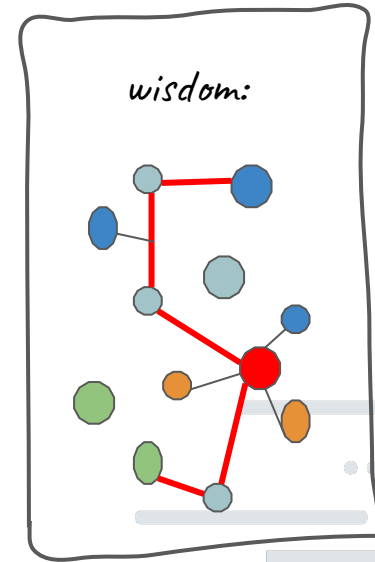
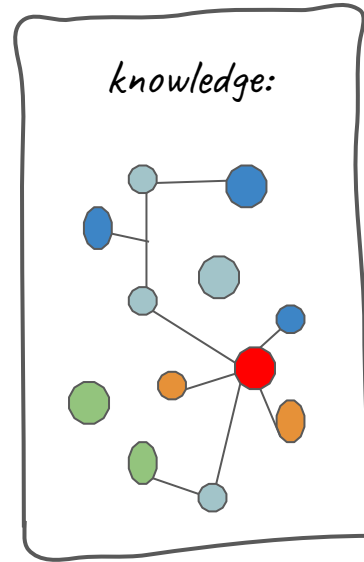
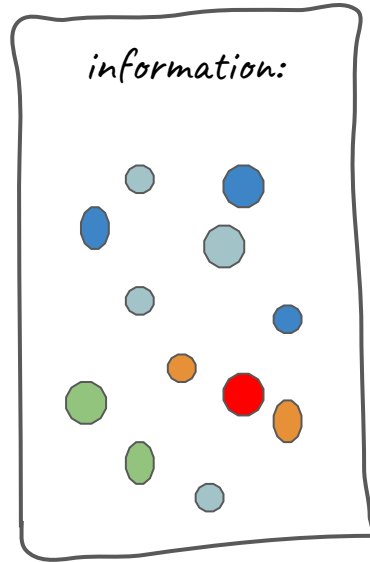
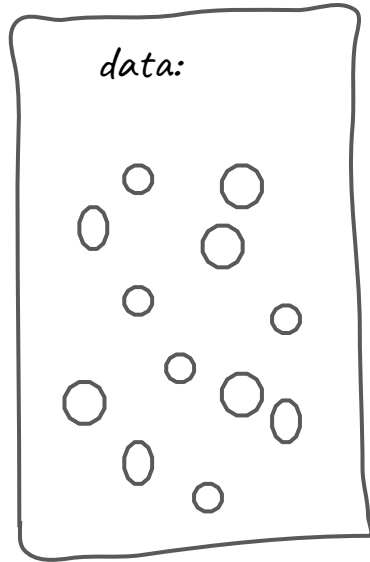


# COST ANALYSIS

# MORE THAN VM

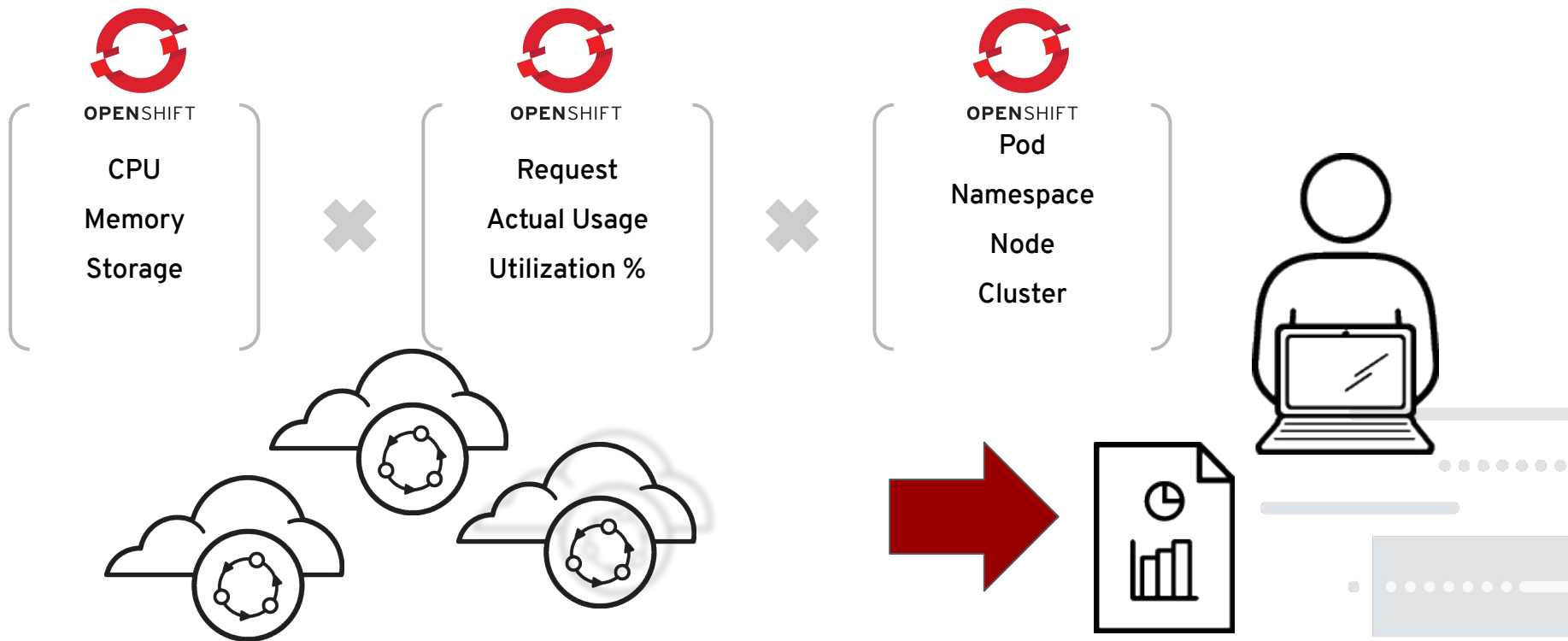


# UNCLUTTERING

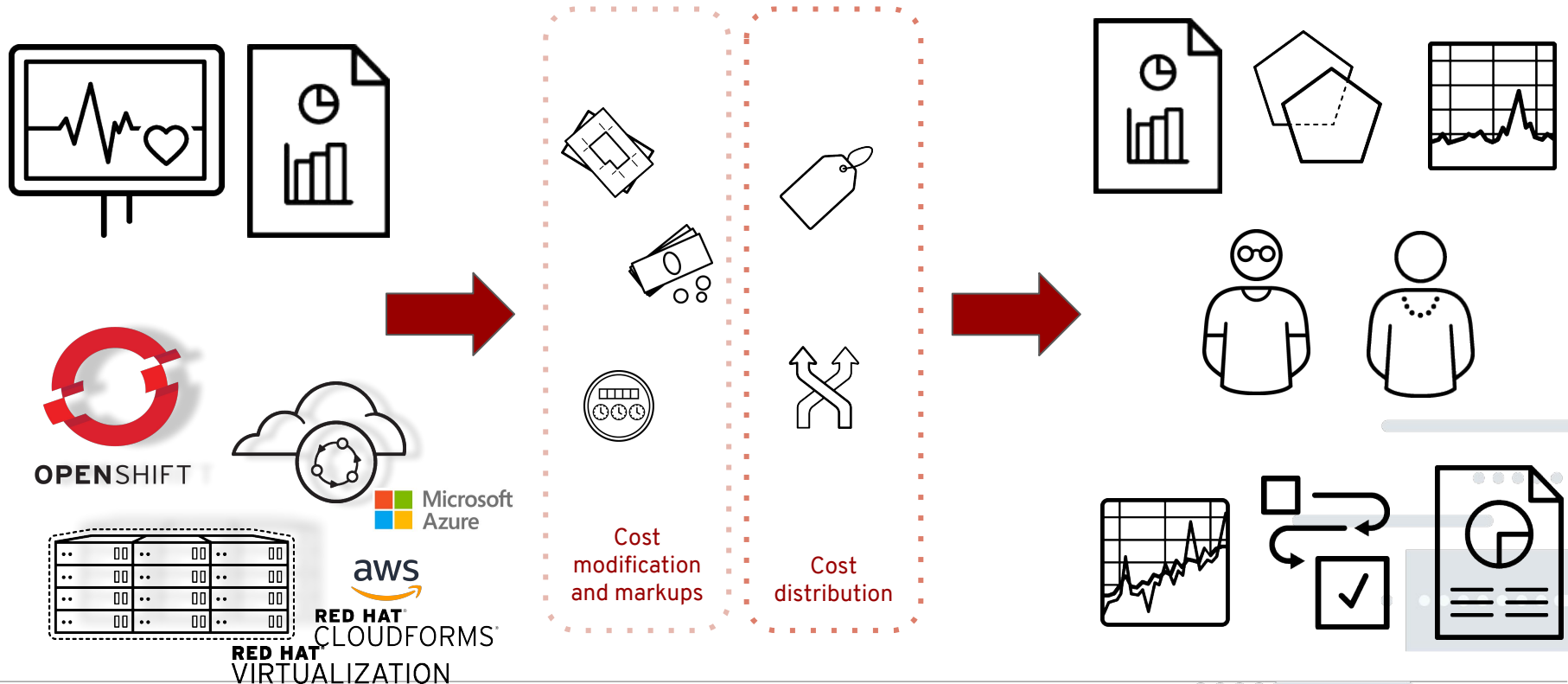


# MAKING SENSE OF COSTS

# CHARGEBACK / SHOWBACK



# COST MANAGEMENT





# CHARGEBACK / COST MANAGEMENT



## CHARGEBACK

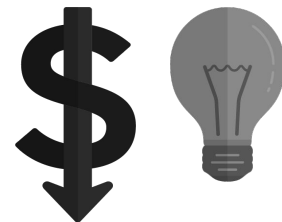
**REPORTING, *WEIGHTED***

BASED ON METRICS

CONSUMPTION ESTIMATE

TO BE PLUGGED INTO BI TOOLS

PREDEFINED USE CASES



## COST MANAGEMENT

**COMPREHENSIVE, *ANALYTICS***

BASED ON METRICS & METADATA

COST & USAGE OPTIMIZATION

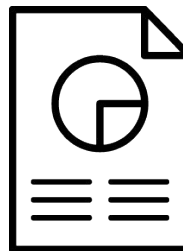
FORECASTING & BUDGETING

EXTENDED USE CASES

# COST MANAGEMENT BEST PRACTICES

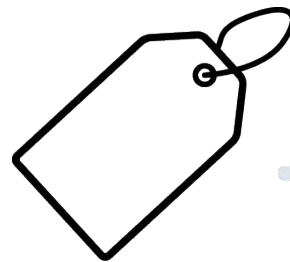
# ANALYZE

- Generate a baseline through budgets
- Know what to expect: know your numbers
- Review the data often
- Use forecasts
- Understand your workloads and requirements for SaaS
- Not everything is equal
- Compare, compare, compare!



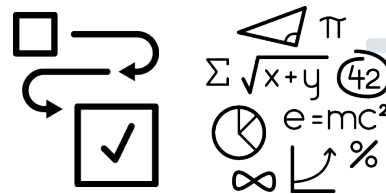
# MAP DATA TO YOUR ORGANIZATION

- Link the service to the business through metadata
- Make it mandatory: enforce use of tags and policies
- Try to be consistent between providers
- Shut down any service that is not tagged



# OPTIMIZE

- Manage your waste
  - Identify instance, storage, snapshots, not used
  - Shut down instances when not needed
  - Find the right usage %
- Choose your payment terms:
  - Reserved Instances
  - Spot instances
  - On-demand
  - Back on-premises?
- Optimize within the service:
  - Use optimized instances (storage, memory, compute, AI)
  - Review the new generation of VM
  - Choose the right size
- Improve through Machine Learning



# DEMO

# COST MANAGEMENT THEMES

Technical Preview



Summit  
2019

## OpenShift Cost Visibility



Augment insights of OpenShift metering on the four footprints. Chargeback from metrics based on projects / clusters and tags

## OpenShift on AWS Cost Distribution



Provide insights about how OpenShift costs are distributed from the raw costs accrued in AWS

## AWS Infrastructure Cost Visibility



Being able to provide insights about the cost of all AWS services, using tags to enable reporting meaningful for the business

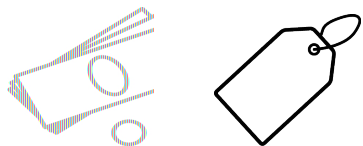
# COST MANAGEMENT THEMES

General Availability



Q3/Q4/Q1

## Markups & Dynamic Pricing



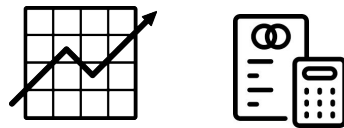
Being able to define pricing based on cloud prices and markups

## New sources



Add support for CloudForms and additional clouds

## Forecasting & Budgets<sup>(\*)</sup>



Forecast usage and cost and compare them with defined budgets

## Third Party Access (API)

## Optimization<sup>(\*)</sup>



RED HAT  
**SUMMIT**

THANK YOU



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