SUSE Worker Nodes on Amazon EKS

TUT1392

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Agenda

i.  SUSE - AWS Alliance
ii.  What are Containers?
iii. Describe why customers are choosing Amazon EKS
iv.  Discuss SUSE Worker Node initiative
SUSE-AWS Alliance Milestones

- 2010: SUSE Linux Available on AWS
- 2014: Support for New X1 and X1e EC2 Instances (2TB / 4TB)
- 2015: Support for New EC2 Bare Metal for HANA
- 2016: Nitro (C5 / M5) Instances for SAP
- 2018: SAP HANA Quick Start Featuring SUSE Linux Enterprise Server for SAP Applications
  - High Availability
  - Available on AWS Quick Start
  - Available on the AWS Marketplace
  - Support for SUSE Manager and SUSE Linux Enterprise Server for SAP Applications
  - Available on AWS
  - Available on the AWS Gov Cloud
  - Available on AWS Free Tier
New SUSE + AWS Offerings!

SUSE Cloud Application Platform Quick Start

SUSE Linux Available on Amazon EC2 A1 Instances


https://www.suse.com/c/suse-linux-enterprise-server-for-arm-15-on-aws/
SUSE + AWS

Dedicated to Customer Success Powered by Enterprise Open Source Solutions

9 years of joint engineering between the Amazon EC2 and SUSE Public Cloud Engineering teams

Trusted for mission-critical workloads on AWS with high availability solutions custom-built for the platform

Seamless Linux support from AWS with AWS engineers specifically trained on SUSE solutions such as SUSE Linux Enterprise Server
What Are Containers?
What Are Containers?

A package/image that can be deployed anywhere (that’s running a Linux Kernel)

Developers create a layered image of their application that contains everything their application requires to run on top of a base OS layer

A container image will be able to be built once and run everywhere

Developers can focus on what they do best – development – as opposed to dealing with packaging or library dependency management

Operations can deploy an entire app stack in seconds because they don’t need to worry about prerequisites
What Are Containers?

Making more efficient use of your server resources while empowering your development and operations staff

Deploying the same code to development and production

Easier for developers – creating a package with just the software needed to run

Can run anywhere – On Premise, Public Cloud or Private Cloud – There’s no difference!
Containers Still Need to be Managed

Virtual Machine Sprawl = Container Sprawl
What Is Kubernetes?

Kubernetes provides a container-centric management environment. It orchestrates computing, networking and storage infrastructure on behalf of user workloads.
Kubernetes Deployment Is Not Easy

Kubernetes is great for container orchestration, but is notoriously hard to

• Set up/install
• Configure
• Update
• Manage
• Secure
57% of Kubernetes workloads run on AWS today — CNCF survey
“Run Kubernetes for me.”
EKS Architecture
EKS Architecture

- EC2 Worker Nodes
- Autoscaling Group
- API Access
- TLS
- ENI
- Network Load Balancer
- Static IPs
- ENI Attachment
- Kubectl Exec/Logs
- EKS Control Plane
- Customer VPC
- EKS VPC

SUSE | AWS
EKS Master Configuration
How do I provision EKS Worker Nodes?
What is the networking configuration for EKS?
Native VPC networking with CNI plugin

Pods have the same VPC address inside the pod as on the VPC

Simple, secure networking

Open source and on Github
IAM authentication with Kubernetes
Kubernetes + AWS IAM

- AWS native access management
- Kubectl and worker nodes
- Works with Kubernetes RBAC
IAM Authentication + Kubectl

1) Passes AWS Identity
2) Verifies AWS Identity
3) Authorizes AWS Identity with RBAC
4) K8s action allowed/denied
How do I provision EKS Worker Nodes?
Worker provisioning

- kubectl
- AWS Auth
- Role
- config map & RBAC
- Workers
Resources

- **VPC CNI**
  https://github.com/aws/amazon-vpc-cni-k8s

- **Worker Node Packer scripts**
  https://github.com/awslabs/amazon-eks-ami

- **Suse Cloud Application Platform on AWS**
  https://aws.amazon.com/quickstart/architecture/suse-cloud-application-platform
SUSE Worker Nodes – Coming Soon!

Provision an EKS cluster
EKS automatically deploys Kubernetes masters

Deploy worker nodes
Add worker nodes to your EKS cluster

Connect to EKS
Point your favorite Kubernetes tooling at your EKS cluster

Run Kubernetes apps
Deploy your Kubernetes applications to your EKS cluster
Benefits of SUSE Worker Node

• Keep the kernel ABI stable for the lifetime of each service pack. Kernel Module Packages built for a specific service pack will remain compatible with all update kernels to that service pack.
• Efficiency through Modular+ Architecture.
• Maintain stability, security and proven standards.
• Easily deploy and transition across on-premise and public cloud.
AWS and SUSE Sessions

• High Performance Computing with SLES for HPC on AWS [TUT1393] - Learn about the tools and techniques scientists and researchers are using to support their efforts on Amazon EC2.

• An Application a Year to An Application a Week on AWS [SPO1464] - Shifting the focus from writing code to deploying applications to production has become more critical as business agility tops the customer list of requirements.

• Public Cloud Roadmap [FUT1440] - This session will cover the roadmap for the 80 plus images that SUSE offers on targeted public cloud providers spanning AWS, Azure, GCP, and OCI.
AWS and SUSE SAP Sessions

• AWS QuickStart HANA Deployment [TUT1384] - Learn how to deploy SAP HANA with SUSE HAE within minutes using AWS Quick Start.

• Discuss the SUSE and AWS Best Practice when deploying NetWeaver + HA on AWS [TUT1383] - An optimal effect of the enqueue replication mechanism can be achieved when combining the application level redundancy with a high availability cluster solution e.g., as provided by SUSE Linux Enterprise Server for SAP Applications.

• SAP on AWS Architectural Overview [CAS1337] - Accelerating the Digital Transformation Journey SUSE and AWS for SAP Applications Will be deep driving how to deploy SAP on AWS environment, and will be overview how can be deploy in Dev, Sandbox, POC.
Questions?