

# Introducing AWS EKS Hybrid Nodes Gateway: Seamless Hybrid Kubernetes Networking

**i** **OPTIONAL** — No breaking changes. Upgrade at your own pace.

**Version:** Initial Release | **Released:** 2026-04-22 | **Upgrade from:** N/A

## Release at a Glance

The Amazon EKS team is excited to announce the initial release of the AWS EKS Hybrid Nodes Gateway, a significant step forward for hybrid Kubernetes deployments. This new component radically simplifies networking between your EKS cluster in the cloud and your Kubernetes pods running on EKS Hybrid Nodes on-premises or at the edge.

Here's the TL;DR for developers and operators:


- **Automated Hybrid Networking:** The Gateway establishes secure, automated network connectivity between your EKS VPC and on-premises pods, abstracting away complex routing.
- **No On-Premises Pod Network Routability Required:** You no longer need to make your on-premises pod networks routable to the EKS VPC, drastically reducing network configuration overhead.
- **Simplified Operations:** It eliminates the need for manual coordination of network infrastructure changes between cloud and on-premises teams.
- **Optimized for Hybrid Workloads:** Designed to support efficient, low-latency communication for workloads spanning cloud and edge, with clear performance recommendations.

## Headline New Features

The EKS Hybrid Nodes Gateway is all about removing the friction from hybrid Kubernetes networking. It introduces a set of capabilities that fundamentally change how you connect your cloud-managed EKS control plane to your on-premises worker nodes.

### Automated, Secure Pod-to-Pod Networking

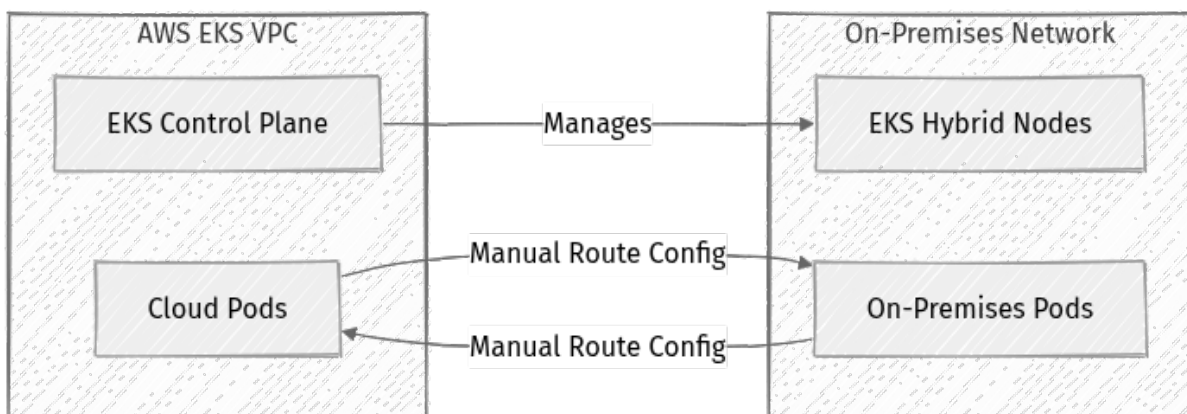
The core feature is the automatic establishment of secure networking. Previously, integrating on-premises nodes into an EKS cluster often required intricate network configurations to ensure pod-to-pod communication across environments. The Gateway handles this automatically.

 **Key Idea:** The Gateway acts as a bridge, securely extending your EKS cluster's networking plane to your hybrid nodes without manual route propagation.

### Eliminating On-Premises Network Routability Requirements

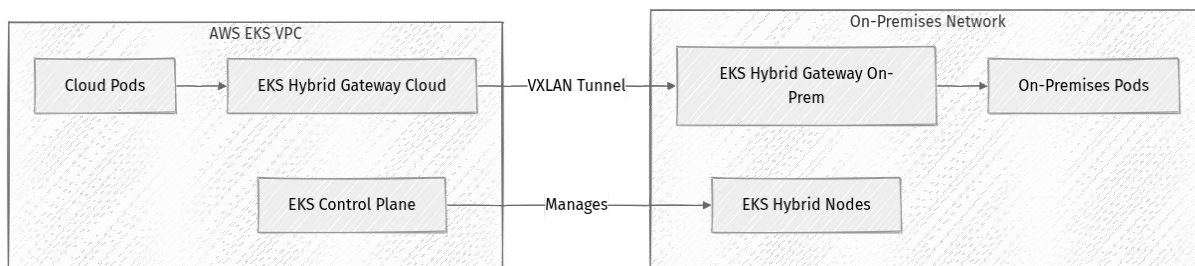
One of the biggest pain points in hybrid cloud networking is the need to make on-premises IP ranges routable from the cloud VPC. The EKS Hybrid Nodes Gateway removes this requirement entirely for your pod networks. It uses **VXLAN** to encapsulate and forward pod-to-pod traffic across hybrid boundaries.

#### Before (Conceptual Manual Setup):



Manual routing and firewall rules needed for *EKS\_Pods* to reach *OnPrem\_Pods* directly.

#### After (With EKS Hybrid Nodes Gateway):



The Gateway handles all cross-environment pod traffic via an automated VXLAN tunnel.

This means less time spent on IP address management, routing tables, and firewall rule coordination, allowing you to focus on your applications.

## Simplified Network Infrastructure Changes

The Gateway abstracts away the underlying network complexity. This is particularly beneficial for organizations with separate cloud and on-premises networking teams. Changes in one environment's network configuration are less likely to impact the other, as the Gateway maintains the necessary connectivity.

## How it Simplifies Kubernetes Management

For anyone operating EKS clusters that span cloud and on-premises environments, the Hybrid Nodes Gateway is a game-changer for operational simplicity.

- **Reduced Network Configuration Overhead:** The most immediate benefit is the significant reduction in manual network setup. No more complex VPN or Direct Connect routing configurations just to enable pod-to-pod communication across the hybrid boundary.
- **Consistent Networking Model:** It brings a more consistent networking experience to hybrid EKS clusters, making on-premises nodes feel more like native cloud nodes from a networking perspective.
- **Faster Deployment of Hybrid Workloads:** By removing networking as a major hurdle, teams can deploy and scale hybrid applications faster, accelerating time to market for edge and on-premises use cases.
- **Lower Operational Burden:** Less manual configuration means fewer opportunities for human error and less time spent troubleshooting network connectivity issues. This translates directly into lower operational costs and happier engineers.

**⚡ Real-world insight:** Many organizations struggle with the "last mile" of networking when extending Kubernetes to the edge. This Gateway directly addresses that by providing a managed solution for a problem often solved with custom, brittle network overlays.

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## Performance Considerations for Hybrid Deployments

While the EKS Hybrid Nodes Gateway simplifies networking, hybrid environments inherently introduce latency and bandwidth considerations. To ensure optimal performance for your hybrid workloads, AWS provides clear recommendations:

- **Reliable Connectivity:** A stable network connection of at least **100 Mbps** is recommended between your EKS VPC and your on-premises environment.
- **Low Latency:** Maintain a maximum of **200ms round trip latency** between the cloud and on-premises locations.

These recommendations are crucial for workloads that require efficient communication between cloud and on-premises components, such as distributed databases, microservices, or data processing pipelines. The simplified network configuration itself, by reducing hops and complexity, contributes to more predictable performance, especially for low-latency applications that benefit from direct pod-to-pod communication without extensive manual routing.


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## Impact on Hybrid Cloud Deployments

The introduction of the EKS Hybrid Nodes Gateway significantly enhances the viability and attractiveness of Amazon EKS for hybrid cloud strategies.

- **Broader Adoption of EKS Hybrid Nodes:** By solving a fundamental networking challenge, the Gateway makes EKS Hybrid Nodes a more practical and accessible solution for running Kubernetes workloads on existing on-premises infrastructure or at edge locations.
- **True Hybrid Cloud Experience:** It moves EKS closer to offering a truly seamless hybrid Kubernetes experience, where the operational model for managing nodes and networking is largely consistent, regardless of their physical location.

- **Enabling New Use Cases:** This simplification unlocks new possibilities for hybrid applications, such as:
  - **Data Locality:** Running data-intensive workloads on-premises while leveraging EKS's control plane in the cloud.
  - **Edge Computing:** Deploying applications closer to data sources or users with centralized management.
  - **Compliance & Governance:** Meeting specific data residency or regulatory requirements by keeping workloads on-premises, without sacrificing cloud-native tooling.

 **Important:** This feature is particularly valuable for organizations that need to maintain specific workloads on-premises due to data gravity, regulatory compliance, or low-latency requirements, but still desire the operational benefits of a managed Kubernetes service like EKS.

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## How to Get Started

Getting started with the Amazon EKS Hybrid Nodes Gateway involves enabling the feature for your EKS cluster and configuring your on-premises hybrid nodes to utilize it.

1. **Review Prerequisites:** Ensure your on-premises environment meets the network connectivity recommendations (100 Mbps, 200ms latency).
2. **Enable the Gateway:** You'll typically enable the EKS Hybrid Nodes Gateway through the AWS CLI or `eksctl` during cluster creation or update. While specific commands will be in the official docs, it will likely involve a parameter similar to:

```
# Conceptual command - refer to official docs for exact syntax
aws eks update-cluster --name my-hybrid-cluster --enable-hybrid-nodes-
gateway
```

Or via `eksctl`:`

```
# Conceptual eksctl config snippet
apiVersion: eksctl.io/v1alpha5
kind: ClusterConfig
metadata:
  name: my-hybrid-cluster
  region: us-west-2
hybridNodes:
```

```
enabled: true
gateway:
  enabled: true
# ... other cluster configuration
```

1. **Configure Hybrid Nodes:** Follow the documentation to configure your on-premises EKS Hybrid Nodes to connect to the Gateway. This will involve installing necessary agents and pointing them to the Gateway endpoints.

For detailed instructions, configuration references, and troubleshooting guides, please refer to the official AWS documentation:

- **Official Changelog:** [<https://aws.amazon.com/about-aws/whats-new/2026/04/amazon-eks-hybrid-nodes-gateway>](https://aws.amazon.com/about-aws/whats-new/2026/04/amazon-eks-hybrid-nodes-gateway)
- **Getting Started Guide:** [<https://docs.aws.amazon.com/eks/latest/userguide/hybrid-nodes-gateway-getting-started.html>](https://docs.aws.amazon.com/eks/latest/userguide/hybrid-nodes-gateway-getting-started.html)

This initial release marks a significant milestone for hybrid Kubernetes on AWS, simplifying operations and accelerating the adoption of EKS for diverse workloads at the edge and on-premises.