# Implementing an AI-Ready SONiC Fabric

## Solution Guides


## Purpose of This Document

To guide **infrastructure leaders and architects** through **end-to-end implementation** of a specific solution.

This document assumes:

- The reader understands networking fundamentals
- The goal is execution, not education

### 1. Product Overview

AI workloads stress networks differently:

- High-volume east–west traffic
- Sensitivity to packet loss
- Latency variance impacting model training

Traditional enterprise networks are not designed for this behavior.

## 2. Reference Architecture

- Leaf–spine topology
- 400G / 800G switching
- RoCEv2-enabled transport
- Lossless fabric design

## 3. Implementation Steps

1. Hardware selection and qualification
2. SONiC deployment and baseline configuration
3. RoCE tuning and buffer configuration
4. Telemetry and visibility enablement
5. Validation and scale testing.

**Each step includes:**

- Design intent
- Operational risks
- Validation checkpoints

## 4. Operational Readiness

This guide emphasizes:

- Observability before scale
- Automation before growth
- Validation before production traffic