

# Docker Usage Decision - Option B: Monitoring Only

---

## Executive Summary

---

After careful evaluation of containerization strategies for the HX Infrastructure project, we have decided to implement **Option B: Docker for Monitoring Stack Only**. This decision balances operational simplicity with modern monitoring capabilities while maintaining our core Ansible-based infrastructure approach.

## Decision Rationale

---

### Selected Approach: Option B - Docker for Monitoring Only

#### Scope of Docker Usage:

- Prometheus monitoring stack
- Grafana dashboards and visualization
- AlertManager for notification management
- Log aggregation services (ELK stack components)
- Monitoring exporters and collectors

#### Rationale:

1. **Operational Simplicity:** Maintains our proven Ansible-based deployment model for core infrastructure
2. **Monitoring Modernization:** Leverages Docker's strengths for monitoring stack deployment and management
3. **Reduced Complexity:** Avoids the overhead of full containerization while gaining monitoring benefits
4. **Team Expertise:** Aligns with current team skills and operational procedures
5. **Risk Mitigation:** Minimizes disruption to existing stable infrastructure

### What Remains Non-Containerized

- Core application servers (Web, App, Database tiers)
- Load balancers and reverse proxies
- Security services and authentication systems
- Backup and maintenance services
- Network infrastructure components

## Implementation Details

---

### Docker Components (Monitoring Stack)

```
# Docker services for monitoring
monitoring_services:
  - prometheus
  - grafana
  - alertmanager
  - node-exporter
  - postgres-exporter
  - nginx-exporter
  - elasticsearch
  - logstash
  - kibana
```

### Integration with Ansible

- Docker services managed through Ansible playbooks
- Configuration templates maintained in Ansible roles
- Service discovery integrated with existing infrastructure
- Backup procedures include Docker volume management

## Benefits of This Approach

---

1. **Best of Both Worlds:** Traditional infrastructure stability + modern monitoring
2. **Incremental Adoption:** Allows future containerization evaluation with reduced risk
3. **Operational Continuity:** Maintains existing deployment and maintenance procedures
4. **Monitoring Excellence:** Leverages Docker ecosystem for comprehensive observability
5. **Resource Efficiency:** Containers optimal for monitoring workloads

## Future Considerations

---

This decision allows for future evaluation of broader containerization without disrupting current operations. The monitoring stack serves as a proving ground for Docker operations within our environment.

## Implementation Timeline

---

- **Phase 3.3:** Backup automation (current focus)
  - **Phase 3.4:** Docker-based monitoring stack deployment
  - **Phase 4.x:** Evaluation of expanded Docker usage based on monitoring experience
- 

**Decision Date:** September 18, 2025

**Review Date:** Q2 2026

**Status:** Approved and Active