

# Linux System Maintenance and Troubleshooting

---

## MONITORING AND TROUBLESHOOTING LINUX SYSTEM PERFORMANCE



**David Clinton**

LINUX SYSTEM ADMINISTRATOR

[bootstrap-it.com/troubleshooting](http://bootstrap-it.com/troubleshooting) | [@davidbclinton](https://twitter.com/davidbclinton) | [linkedin.com/in/dbclinton](https://www.linkedin.com/in/dbclinton)

# Overview



# Overview



Assess capacity of system resources

# Overview



Assess capacity of system resources

Monitor your system

# Overview



Assess capacity of system resources

Monitor your system

Control processes

# Overview



Assess capacity of system resources

Monitor your system

Control processes

Plan to meet your needs

# Course Overview



# Course Overview



Prepare disaster recovery plans



# Course Overview



Prepare disaster recovery plans

Ensure hardware functionality

# Course Overview



Prepare disaster recovery plans

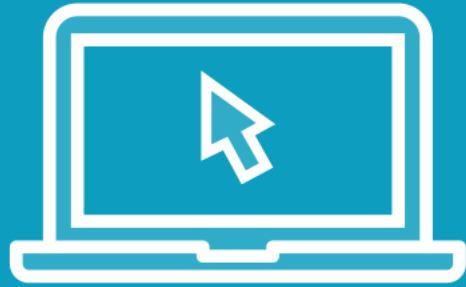
Ensure hardware functionality

Build software packages

# Identifying System Resource Usage

---

# Demo



Compile a resource inventory

# Demo



Compile a resource inventory

CPU

# Demo

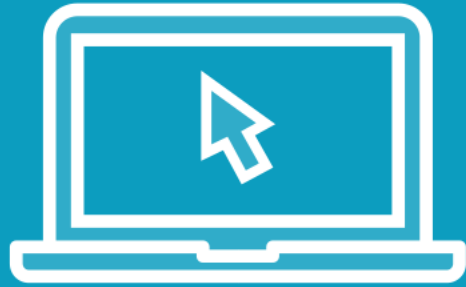


Compile a resource inventory

CPU

Memory

# Demo



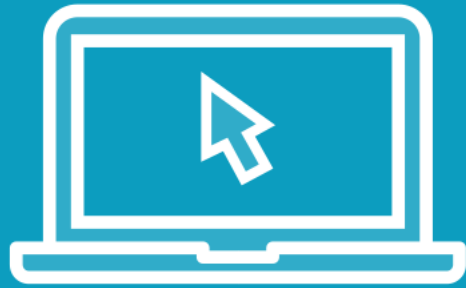
Compile a resource inventory

CPU

Memory

Storage space

# Demo



Compile a resource inventory

CPU

Memory

Storage space

Inodes limits



# Demo



Compile a resource inventory

CPU

Memory

Storage space

Inodes limits

Network bandwidth

# Storage and Network Bandwidth Metrics

---

# System Monitoring Solutions

---



Monitoring Solutions

Graphs



Monitoring Solutions

Graphs  
Charts



Monitoring Solutions

Graphs

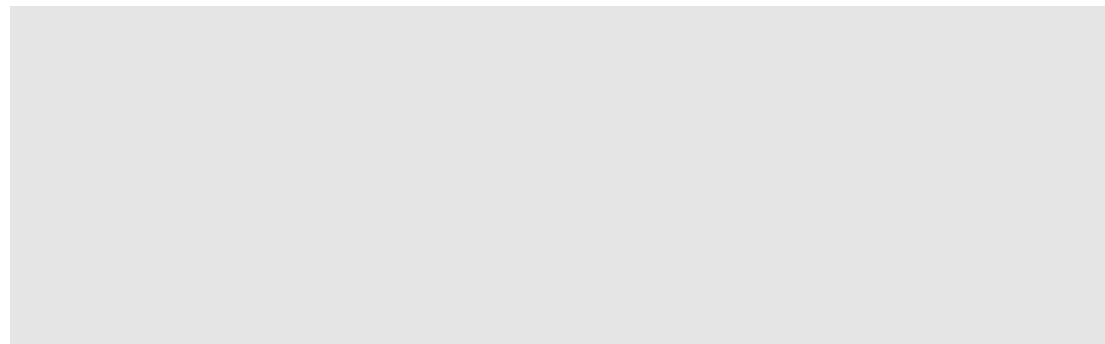
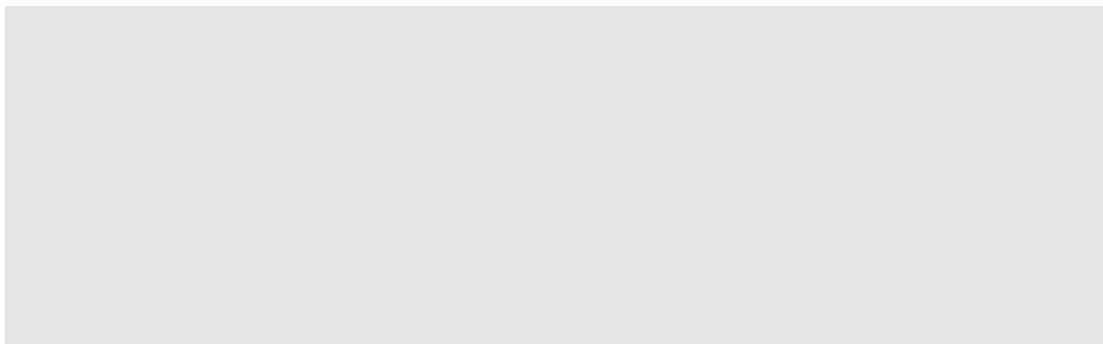
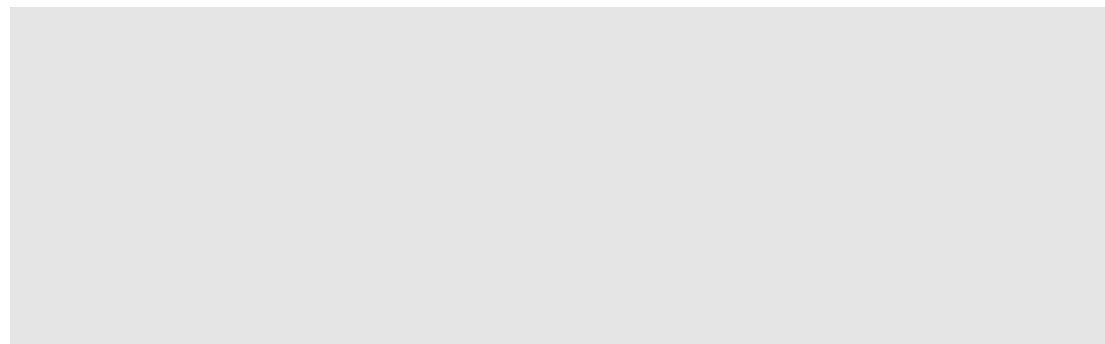
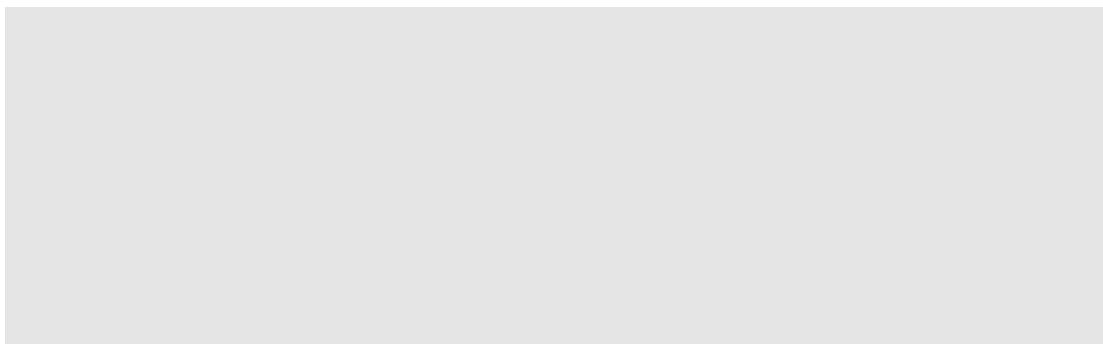
Charts

Alerts



Monitoring Solutions

# Monitoring Solutions for Linux





# Monitoring Solutions for Linux

## **collectd**

Remote browser-based data collection

# Monitoring Solutions for Linux

## **collectd**

Remote browser-based data collection

## **Nagios**

Heavily customizable

# Monitoring Solutions for Linux

## **collectd**

Remote browser-based data collection

## **Nagios**

Heavily customizable

## **Munin**

Forensics analysis

# Monitoring Solutions for Linux

## **collectd**

Remote browser-based data collection

## **Nagios**

Heavily customizable

## **Munin**

Forensics analysis

## **Nmon**

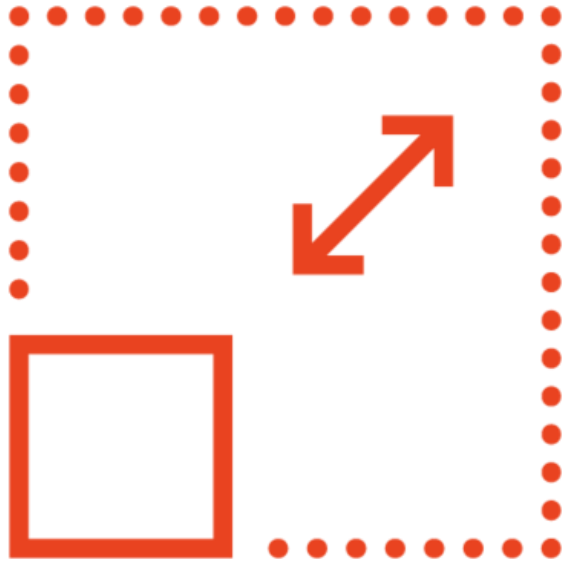
SSH-based visualizations

# Controlling System Resource Usage

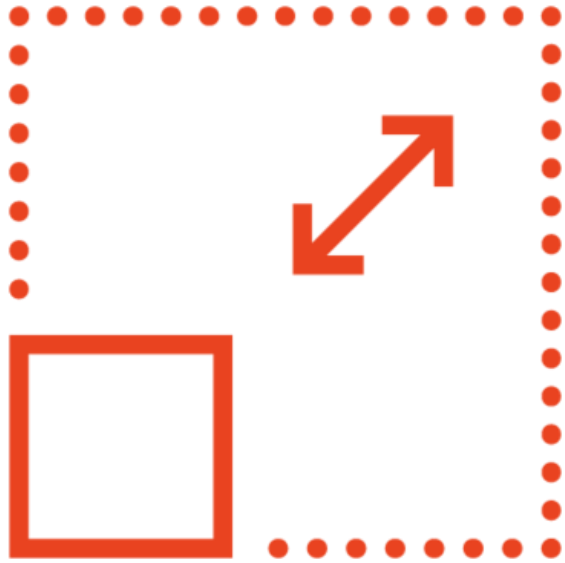
---

# Defining a Capacity Planning Strategy

---



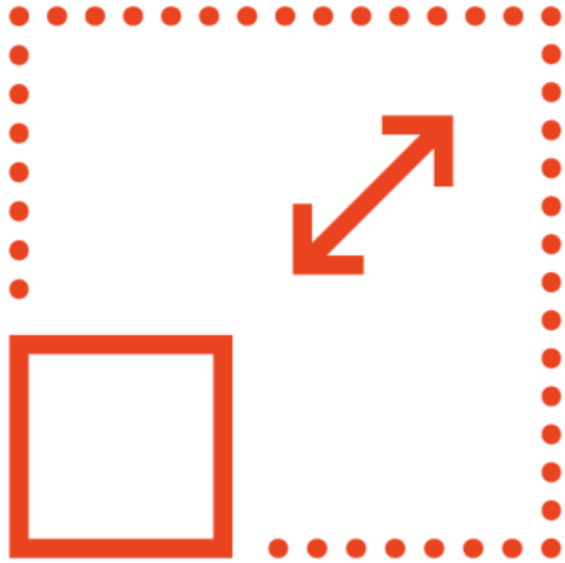
Anticipate Changes



Anticipate Changes

Increasing compute demand

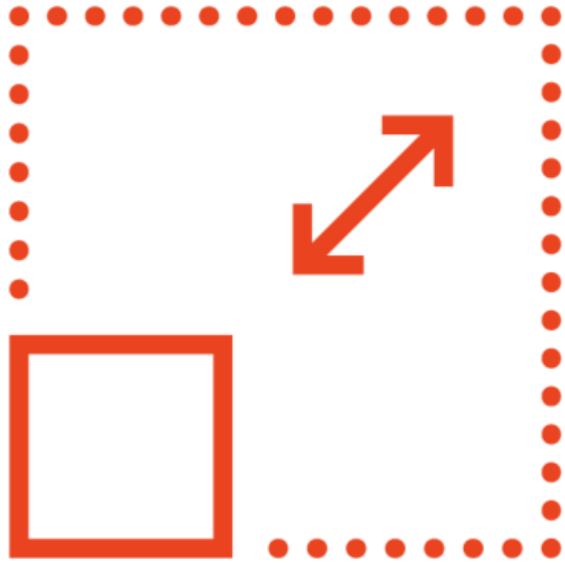




Anticipate Changes

Increasing compute demand

Increasing storage capacity demand



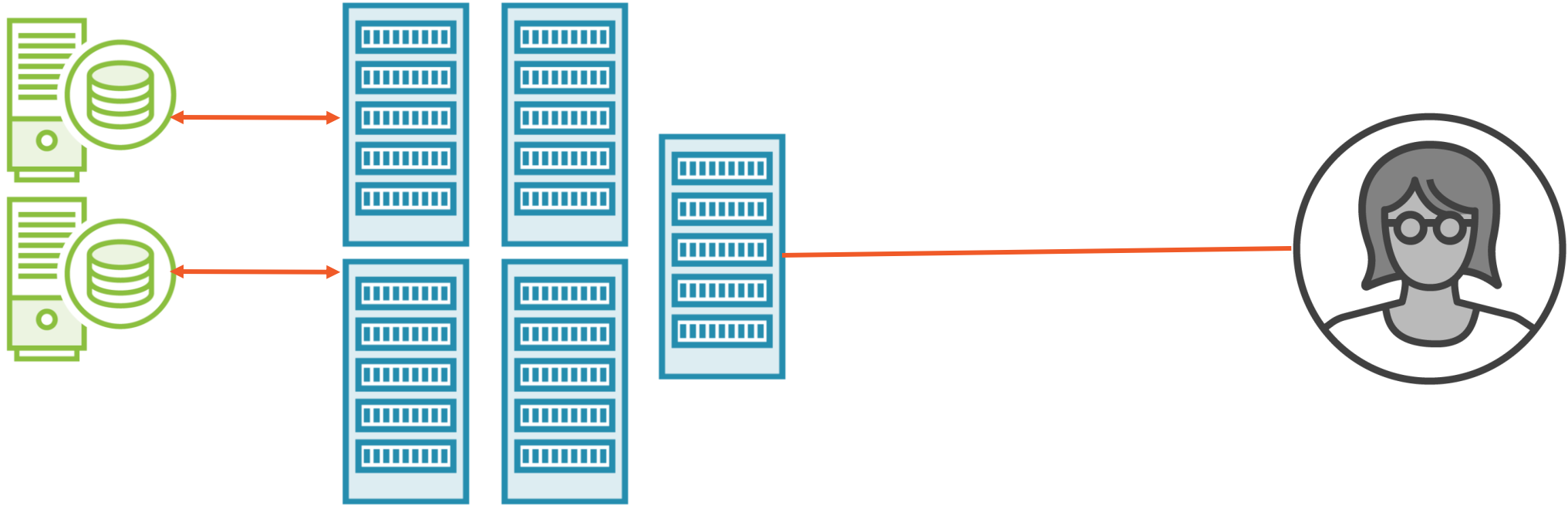
Anticipate Changes

Increasing compute demand

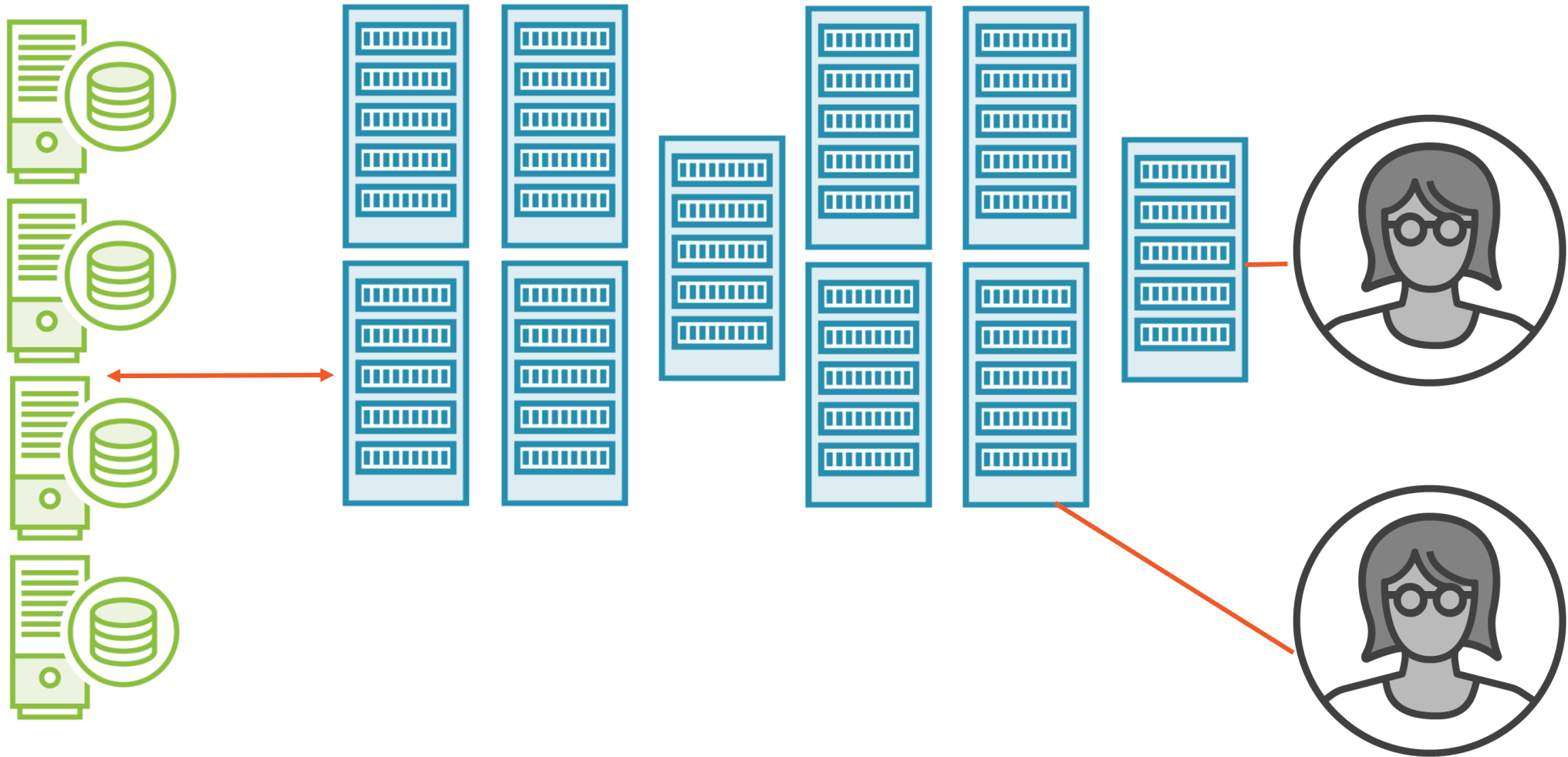
Increasing storage capacity demand

Decreasing demand

# Define Your Current Baseline Performance



# Define Your Current Baseline Performance



# Summary



# Summary



Resource capacity metrics

# Summary



Resource capacity metrics

Monitoring solutions

# Summary



Resource capacity metrics

Monitoring solutions

Controlling processes



# Summary



Resource capacity metrics

Monitoring solutions

Controlling processes

Capacity planning