Chapter 12: Scenario-Based Linux Interview Questions

Purpose of this chapter
This chapter trains you to **think like a production engineer**, not just answer questions. Interviewers care more about **your approach** than the final command.

How to Answer Scenario Questions (Read This First)

Interviewers expect:

1. Calm response
2. Logical order
3. Clear explanation
4. Correct tools

Golden rule:

"**Explain what you will check first, second, and third**."

Never jump directly to a command without explaining why.

Scenario 1: A Server Is Slow

Interview Question

"The server is slow. What will you check?"

Expected Approach

1. CPU usage
2. Memory usage
3. Disk usage and I/O
4. Network
5. Application logs

Commands

```
top
free -h
df -h
iostat
journalctl
```

Interview Answer (Model)

“First I check CPU and load, then memory and swap, then disk usage and I/O. If system resources look fine, I check logs.”

Scenario 2: Disk Is 100% Full (Without Downtime)

Expected Checks

1. Identify affected filesystem
2. Find large directories
3. Check logs
4. Truncate or rotate logs

Commands

```
df -h
du -sh /*
lsof | grep deleted
```

Interview Insight

Deleting files may not free space if a process still holds them open.

Scenario 3: A Service Is Not Starting

Debugging Steps

1. **Check service status**
2. **Check logs**
3. **Check port conflicts**
4. **Check permissions**
5. **Check SELinux**

Commands

```
systemctl status service
journalctl -u service
ss -tulnp
```

Interview line:

“Logs usually explain why a service fails.”

Scenario 4: User Cannot SSH Into Server

Possible Causes

- **SSH service down**
- **Firewall blocking port 22**
- **Wrong permissions**
- **SELinux restriction**
- **Wrong credentials**

Commands

```
systemctl status sshd
ss -tulnp
journalctl -u sshd
```

Scenario 5: High CPU Usage by a Process

Approach

1. **Identify process**
2. **Check logs**
3. **Decide to restart or tune**

Commands

```
top
ps aux --sort=-%cpu
```

Interview line:

“I identify the process first, then check why it’s consuming CPU.”

Scenario 6: Application Works Locally but Not Remotely

Common Reasons

- **Service bound to localhost**
- **Firewall blocking port**
- **Port not exposed**
- **Network routing issue**

Commands

```
ss -tulnp
ip a
```

Scenario 7: Zombie Processes Increasing

Explanation

- Parent process not reaping child processes
- Application bug

Fix

- Restart parent process
- Fix application logic

Interview line:

“Zombie processes indicate a problem in parent process handling.”

Scenario 8: System Rebooted Unexpectedly

Possible Causes

- OOM Killer
- Kernel panic
- Power failure

Commands

```
journalctl -b -1
dmesg
```

Interview insight:

OOM killer logs are a common cause of unexpected reboots.

Scenario 9: Debugging Memory Leak

Symptoms

- Increasing memory usage
- Application crashes
- OOM events

Approach

1. **Monitor memory over time**
2. **Identify leaking process**
3. **Temporary restart**
4. **Long-term fix in code**

Interview line:

“Linux shows the symptom; the fix is usually in application code.”

Scenario 10: Service Works After Restart but Fails Again

Likely Causes

- Memory leak
- File descriptor leak
- Resource exhaustion

Commands

```
lsof
ulimit -a
```

Scenario 11: A Port Is Already in Use

Commands

```
ss -tulnp
lsof -i :PORT
```

Interview explanation:

“I identify which process is using the port before stopping anything.”

Scenario 12: Application Logs Growing Too Fast

Solution

- Identify log location
- Configure log rotation

Commands

```
du -sh /var/log/*
```

Interview line:

“Uncontrolled logs are a common reason for disk full incidents.”

Scenario 13: Server Lost Network Connectivity

Debug Flow

1. Check IP address
2. Check routing
3. Check DNS
4. Check firewall

Commands

```
ip a
ip route
ping
```

Scenario 14: Cron Job Not Running

Possible Issues

- Cron service stopped
- Permission issues
- Wrong environment variables

Commands

```
systemctl status crond
journalctl -u crond
```

Scenario 15: System Time Mismatch

Impact

- **SSL failures**
- **Authentication issues**
- **Log confusion**

Fix

```
timedatectl
```

Interview line:

“Time synchronization is critical for distributed systems.”

Chapter 12: Interview Takeaways

You should now:

- **Answer scenario questions confidently**
- **Follow a structured troubleshooting flow**
- **Explain why you check something**
- **Avoid random command dumping**
- **Think like a production engineer**
