



# Delivering New InSight into NonStop Analysis

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NonStop TBC September 2023



# Contents

- TCM – The Two Questions That Made Us
- Getting InSightful
- Real World Examples
- Questions



**Can we  
help?**



**What  
else?**

# TCM – Early Years

- Focus on proximity, seamlessness
- Feel like another part of the team
- Highly responsive
- Always available
- Quick to adapt
- Combine NonStop expertise, with exemplary Service Management





# TCM today



Systems Management



Security



Monitoring and Ops



Compliance



Data Replication



Application Modernisation



Performance Analysis



Resourcing



Health Checks



And more...





# TCM today

- Dedicated NonStop service experts
- Design and deliver bespoke service solutions to NonStop Customers around the globe
- Onsite and Remote services delivered via Centre of Excellence based in Scotland
- Never lost a Customer, never failed an SLA
- Flexible, responsive, adaptable, trusted partner, part of the team
- HPE silver partner
- Preserving NonStop knowledge
- TCM Video: link / [www.tcm.uk.com](http://www.tcm.uk.com)



**Hewlett Packard  
Enterprise**





# Getting Insightful

Andy Vasey, TCM



The most dangerous phrase in the English language is:

”we have always done it this way”

- Dr. Grace Hopper





# TCM InSight

## Bringing Your NonStop into Focus





# INTRODUCING TCM InSight

## What is InSight?

- TCM InSight is a quick, snapshot assessment, aimed at providing a clear and accurate understanding of your NonStop systems and setup





# INTRODUCING TCM InSight

## What is InSight?

- In essence, a short yet comprehensive audit
- Lasting only a few days
- With minimal input from Customer
- Designed, built and delivered in collaboration with HPE





# HOW IT WORKS

- **Report, Rate, Recommend, Review**
  - TCM will produce a comprehensive report providing an assessment of 18 NonStop areas of interest
  - Each area will be scored using a simple traffic-light rating system providing 'at a glance' understanding
  - Findings and further recommendations will be provided, identifying the path to Best Practice
  - A follow-up review with the Customer will explore the report and provide an opportunity to discuss any findings or ratings in greater detail

## 2. Disc Configuration

### Description:

Having the correct disk configuration is essential to a smooth-running system. This includes path and cpu balancing.

### What we assessed:

We checked the disk configuration, disk cache, freespace, fragmentation and dirty reads/writes. We also checked for any documentation, evidence of daily tasks being performed and any exceptions being highlighted by the daily checks.

### Assessment:

We found a number of disks with free space less than 80%. We also found evidence of daily checklist tasks not being performed or any follow up being performed and/or reported on.

Rating:

### Recommended Action:

Perform clean-ups/archiving on the affected disks to free up some free space. Ensure that DSAP (Disk Space Analysis) is run on a regular basis alongside Disk Reloads.

Perform a disk sizing task to ascertain whether or not more or larger disks are required.

Ensure that processes and procedures are followed in relation to daily tasks by operations/system managers.

# HOW IT WORKS

- **Recommended Actions:**
  - No further action
  - Recommend change to process / configuration / setting
  - Recommend new product / tool / service
  - Recommend further, deeper analysis of certain area(s)





# Benefits

- ✓ Inexpensive
- ✓ Efficient use of time – results within one week
- ✓ Despite efficiency – still comprehensive
- ✓ Independent, objective analysis (not a witch hunt)
- ✓ Does not require NonStop knowledge to understand report
- ✓ Minimally invasive – touch of a button
- ✓ One-off / annually / periodically
- ✓ Tailored and scalable

# WHY GET InSight?



## Systems Managers:

- Personal development / continuous improvement
- Confirmation of competence
- Justification for recommended system improvements, training etc.



## Senior Management, looking for independent appraisal of NonStop function:

- Recently assumed responsibility for technology
- Changes in team / support function
- Wider organisational continuous improvement / compliance programs







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# TCM InSight

## Real World Example





# InSight

- **Real World Example**
  - Summary Page
  - Red, Amber, Green Examples
  - Follow Up Report



# InSight

- **Report Overview Page**
  - Summary of Findings
  - Ratings Grid
  - Glossary



## TCM InSight – NonStop System Health-Check

The following report provides findings and insights recorded by TCM NonStop Consultants as part of the TCM InSight NonStop System health-check. All recommendations are based on analysis and judgement of existing state of systems, configurations, processes and procedures as compared with Best-Practice in the industry. This page of the report provides a snapshot overview of the findings and ratings, along with general comments about the NonStop's health. The subsequent pages of the report go into greater detail into each of the 18 key areas assessed. The table at the end of the report provides a summary of next steps based on the findings and recommendations.

**Audit Performed on:** 12/01/2023

**By TCM Auditor:** Rick Stather

### Summary

Overall, we found that the Customer's Systems are well configured, however we discovered TMF had been configured very inefficiently compared to the size and number of Audited disk volumes configured. We also discovered the systems have very little free memory which requires further investigation as this could present serious issues.

### Rating Overview

<a href="#">TMF Configuration</a>	Red	Amber	Green	<a href="#">OSS Space</a>	Red	Amber	Green
<a href="#">Disk Configuration</a>	Red	Amber	Green	<a href="#">OS / Patch Release Management</a>	Red	Amber	Green
<a href="#">DR Procedures</a>	Red	Amber	Green	<a href="#">Third Party Products</a>	Red	Amber	Green
<a href="#">Performance</a>	Red	Amber	Green	<a href="#">Hardware System Logs</a>	Red	Amber	Green
<a href="#">Security</a>	Red	Amber	Green	<a href="#">File System</a>	Red	Amber	Green
<a href="#">Backup Strategy</a>	Red	Amber	Green	<a href="#">Network</a>	Red	Amber	Green
<a href="#">Batch</a>	Red	Amber	Green	<a href="#">Kernel</a>	Red	Amber	Green
<a href="#">Operations / Monitoring</a>	Red	Amber	Green	<a href="#">Pathway</a>	Red	Amber	Green
<a href="#">Spoolers</a>	Red	Amber	Green	<a href="#">CPUs</a>	Red	Amber	Green

### Glossary

#### Ratings:

**Red** - Serious failure, high risk of service affecting issues, requires immediate action

**Amber** - Not best practice, potential risk to service, requires attention and consideration

#### Severity:

**High** - Requires move from Red to Green rating

**Low** - Requires move from Amber to Green rating

**Opp** - Opportunity for improvement,



# InSight

- **Report Overview**

## Summary

Overall, we found that the Customer's Systems are well configured, however we discovered TMF had been configured very inefficiently compared to the size and number of Audited disk volumes configured. We also discovered the systems have very little free memory which requires further investigation as this could present serious issues.

# InSight

- Report Overview

## Rating Overview



<a href="#">TMF Configuration</a>		x		<a href="#">OSS Space</a>			x
<a href="#">Disk Configuration</a>			x	<a href="#">OS / Patch Release Management</a>			x
<a href="#">DR Procedures</a>			x	<a href="#">Third Party Products</a>			x
<a href="#">Performance</a>	x			<a href="#">Hardware System Logs</a>			x
<a href="#">Security</a>			x	<a href="#">File System</a>			x
<a href="#">Backup Strategy</a>			x	<a href="#">Network</a>			x
<a href="#">Batch</a>			x	<a href="#">Kernel</a>			x
<a href="#">Operations / Monitoring</a>			x	<a href="#">Pathway</a>			x
<a href="#">Spoolers</a>			x	<a href="#">CPUs</a>			x





# InSight

- Green Example
- Network



## 15. Network

### Description:

Network configuration is a major part of a Nonstop System. The CLIM management should have the latest software for the running Nonstop version.

IP CLIM configuration plays a critical role in any System Failure to switch to different stacks without any down time or disconnect of connections.

### What we assessed:

We checked to see if the IP CLIMs are configured for failover in case of Any CLIM failure and whether configured to use ATCP so no Customer connections are disconnected in event of a CLIM failure.

We checked to see if Customer is utilising bonded pairs. This is additional protection which provides against an individual port failure on a IP CLIM as well as provide double throughput by 'bonding' 2 x ethernet ports together across one Provider.

We checked if any TCPIP process are configured correctly with backup process and ftp disabled.

### Assessment:

The IP CLIM's are configured for both 'bonded' pairing as well as ATCP failover of each IP CLIM. This is optimal and provides the best resiliency.

Rating:

### Recommended Action:

No further specific action on the IP CLIM's is required based upon our analysis.



# InSight

- **Green Example: Network**

## 15. Network

### **Description:**

Network configuration is a major part of a Nonstop System. The CLIM management should have the latest software for the running Nonstop version.

IP CLIM configuration plays a critical role in any System Failure to switch to different stacks without any down time or disconnect of connections.

# InSight

- **Green Example: Network**

## What we assessed:

We checked to see if the IP CLIMs are configured for failover in case of Any CLIM failure and whether configured to use ATCP so no Customer connections are disconnected in event of a CLIM failure.

We checked to see if Customer is utilising bonded pairs. This is additional protection which provides against an individual port failure on a IP CLIM as well as provide double throughput by 'bonding' 2 x ethernet ports together across one Provider.

We checked if any TCPIP process are configured correctly with backup process and ftp disabled.



# InSight

- **Green Example: Network**

## Assessment:

The IP CLIM's are configured for both 'bonded' pairing as well as ATCP failover of each IP CLIM. This is optimal and provides the best resiliency.

Rating:



# InSight

- **Green Example: Network**

## Recommended Action:

No further specific action on the IP CLIM's is required based upon our analysis.



# InSight

- **Amber Example**
  - TMF Configuration



## 1. TMF Configuration

### Description:

TMF protects transactions and performs database recovery. It ensures database consistency by protecting transactions from many potential hazards, including program failures, system component failures, and communication failures. It protects transactions from one another, thus providing database consistency despite concurrent transactions. It performs recovery by using transaction-audit information.

### What we assessed:

We assessed the configuration of TMF. This included Active Datavols, Auditdump process, Transaction rates and Audit Volumes. We assessed whether or not Audit and/or Online dumps were necessary and if Auxiliary Audittrails were required.

### Assessment:



The configuration of TMF shows that transaction rates are relatively high (300+ TPS). Active Audittrail capacity being used is only 5%. Audittrail file size is set at 20000 with 9 files per volume being retained on disk. A file size of 20000 is sufficient. Auxiliary Audittrails are not used. There are a total of 80 x Disk volumes containing a large number of audited files configured as active Datavols and under TMF protection.

Audit dumps are enabled and Customer is taking regular Online dumps.

By not utilising Auxiliary Audittrails, this results in greater Disk I/O performance on the \$AUDIT volume, as well as longer potential recovery time in event that a disk volume (or part thereof e.g. A database) needed to be recovered.

Rating:

### Recommended Action:

It is advised to reconfigure TMF to utilise Auxiliary Audittrails for better overall TMF and system performance, faster recovery time, fast backout of aborted transactions and would help Customer separate application environments (they have many) by utilising separate disk volumes.

# InSight

- **Amber Example: TMF Configuration**

## 1. TMF Configuration

### Description:

TMF protects transactions and performs database recovery. It ensures database consistency by protecting transactions from many potential hazards, including program failures, system component failures, and communication failures. It protects transactions from one another, thus providing database consistency despite concurrent transactions. It performs recovery by using transaction-audit information.

# InSight

- **Amber Example: TMF Configuration**

## What we assessed:

We assessed the configuration of TMF. This included Active Datavols, Auditdump process, Transaction rates and Audit Volumes. We assessed whether or not Audit and/or Online dumps were necessary and if Auxiliary Audittrails were required.

# InSight

- **Amber Example: TMF Configuration**

## Assessment:



The configuration of TMF shows that transaction rates are relatively high (300+ TPS). Active Audittrail capacity being used is only 5%. Audittrail file size is set at 20000 with 9 files per volume being retained on disk. A file size of 20000 is sufficient. Auxiliary Audittrails are not used. There are a total of 80 x Disk volumes containing a large number of audited files configured as active Datavols and under TMF protection.

Audit dumps are enabled and Customer is taking regular Online dumps.

By not utilising Auxiliary Audittrails, this results in greater Disk I/O performance on the \$AUDIT volume, as well as longer potential recovery time in event that a disk volume (or part thereof e.g. A database) needed to be recovered.

Rating:



# InSight

- **Amber Example: TMF Configuration**

## Recommended Action:

It is advised to reconfigure TMF to utilise Auxiliary Audittrails for better overall TMF and system performance, faster recovery time, fast backout of aborted transactions and would help Customer separate application environments (they have many) by utilising separate disk volumes.



# InSight

- **Red Example**
  - Performance



## 4. Performance

### Description:

Performance management is the process of managing the performance of your system and network environment to ensure that you get the best return from your systems and that the systems meet your business needs defined by your service-level agreements.

### What we assessed:

We checked to see what Measurements were run and how often. We checked for any documentation and any published findings. We also checked PEEK statistics.

### Assessment:

We found no evidence that any Measurements are taking place, there is no documentation and no findings.

We also discovered from analysis of PEEK statistics, very little free / usable memory. This could be a major concern in the event of a CPU failure for example. Since we know this is a fairly large system with a large amount of memory configured, this is of major concern and warrants further investigation.

Rating:

### Recommended Action:

Customer or TCM run some Measures and analysis performed to determine what is consuming the available memory, especially as we know Customer runs a number of applications in the OSS space.





# InSight

- **Red Example: Performance**

## 4. Performance

### Description:

Performance management is the process of managing the performance of your system and network environment to ensure that you get the best return from your systems and that the systems meet your business needs defined by your service-level agreements.

# InSight

- **Red Example: Performance**

## What we assessed:

We checked to see what Measurements were run and how often. We checked for any documentation and any published findings. We also checked PEEK statistics.

# InSight

- **Red Example: Performance**

## Assessment:

We found no evidence that any Measurements are taking place, there is no documentation and no findings.

We also discovered from analysis of PEEK statistics, very little free / usable memory. This could be a major concern in the event of a CPU failure for example. Since we know this is a fairly large system with a large amount of memory configured, this is of major concern and warrants further investigation.

Rating:

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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# InSight

- **Red Example: Performance**

## Recommended Action:

Customer or TCM run some Measures and analysis performed to determine what is consuming the available memory, especially as we know Customer runs a number of applications in the OSS space.



# InSight

- **The Process Continued**
  - Review Report
  - Discuss Recommended Actions
  - Plan Next Steps
  - Implement Corrections



## TCM InSight – NonStop System Health-Check

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<a href="#">Performance</a>	Red	Amber	Green	<a href="#">Hardware System Logs</a>	Red	Amber	Green
<a href="#">Security</a>	Red	Amber	Green	<a href="#">File System</a>	Red	Amber	Green
<a href="#">Backup Strategy</a>	Red	Amber	Green	<a href="#">Network</a>	Red	Amber	Green
<a href="#">Batch</a>	Red	Amber	Green	<a href="#">Kernel</a>	Red	Amber	Green
<a href="#">Operations / Monitoring</a>	Red	Amber	Green	<a href="#">Pathway</a>	Red	Amber	Green
<a href="#">Spoolers</a>	Red	Amber	Green	<a href="#">CPUs</a>	Red	Amber	Green

### Glossary

#### Ratings:

**Red** - Serious failure, high risk of service affecting issues, requires immediate action

**Amber** - Not best practice, potential risk to service, requires attention and consideration

#### Severity:

**High** - Requires move from Red to Green rating

**Low** - Requires move from Amber to Green rating

**Opp** - Opportunity for improvement,

# InSight

- The Process Continued
  - Correcting Amber Action
  - Customer reconfigured TMF as per TCM's recommendations
  - Follow up report:

## 1. TMF Configuration

### Description:

TMF protects transactions and performs database recovery. It ensures database consistency by protecting transactions from many potential hazards, including program failures, system component failures, and communication failures. It protects transactions from one another, thus providing database consistency despite concurrent transactions. It performs recovery by using transaction-audit information.

### What we assessed:

We assessed the configuration of TMF. This included Active Datavols, Auditdump process, Transaction rates and Audit Volumes. We assessed whether or not Audit and/or Online dumps were necessary and if Auxiliary Audittrails were required.

### Assessment:

Following previous InSight review, Customer took on board TCM's recommendation to create Auxiliary audit trails and to reassign all Datavols across these Auxiliary audit trails. The configuration of TMF now shows transaction rates slightly higher (350+ TPS) and active Audittrail capacity being used now only 1%. Audittrail file sizes were reduced to file size of 9500 with 10 files per volume being retained on disk. There are now a total of 80 disk volumes spread across 10 x Auxiliary Audittrails. The Customer has also configured the disk volumes so different application environments make use of different Auxiliary audit trails.

Audit dumps are enabled and Customer is taking regular Online dumps.

We can now see a marked decrease in Disk I/O on the \$AUDIT volume, This will provide the Customer with the confidence that should a recovery be required of a disk, this will now be performed much quicker. Likewise, Customer should see faster backouts for longer running transactions.

Rating:

### Recommended Action:

Customer has optimised the TMF configuration on the System and this is inline now the best practise to provide the best performance and recovery times for audited files. Customer should continue to monitor general performance of the system.

# InSight

- The Process Continued: Correcting Amber Action

## Assessment:



Following previous InSight review, Customer took on board TCM's recommendation to create Auxiliary audit trails and to reassign all Datavols across these Auxiliary audit trails. The configuration of TMF now shows transaction rates slightly higher (350+ TPS) and active Audittrail capacity being used now only 1%. Audittrail file sizes were reduced to file size of 9500 with 10 files per volume being retained on disk. There are now a total of 80 disk volumes spread across 10 x Auxiliary Audittrails. The Customer has also configured the disk volumes so different application environments make use of different Auxiliary audit trails. Audit dumps are enabled and Customer is taking regular Online dumps.

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Rating:

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# InSight

- **The Process Continued: Correcting Amber Action**

## Recommended Action:

Customer has optimised the TMF configuration on the System and this is inline now the best practise to provide the best performance and recovery times for audited files.  
Customer should continue to monitor general performance of the system.





# InSight

- **The Process Continued**
  - Correcting **Red** Action
  - Customer requested TCM run a deeper analysis of Applications using Measure and assist with implementing any recommendations
  - Follow up report:



## 4. Performance

### Description:

Performance management is the process of managing the performance of your system and network environment to ensure that you get the best return from your systems and that the systems meet your business needs defined by your service-level agreements.

### What we assessed:

We checked to see what Measurements were run and how often. We checked for any documentation and any published findings. We also checked PEEK statistics and looked for any excessive memory consumption and overly resourced [CPUs](#) since last InSight analysis.

### Assessment:

Customer now runs Measures on a daily [basis](#) and these are analysed once per month. Since last InSight review, further analysis was made and measure run and analysed. We were able to identify that a polling java process introduced by the Customer in the past year which produces instance transaction reporting, was not coded efficiently and was hogging CPU memory. With the assistance of TCM's application modernisation knowledge and experience we were able to develop a new solution so that Customer still got the benefits of the instant reporting without the process(es) consuming vast amounts of memory leaving them exposed to a possible outage.

Rating:

### Recommended Action:

Customer should keep running periodic measures and analysing results as well as continue to look for ways to modernise their current applications to benefit the wider enterprise and business.

# InSight

- **The Process Continued: Correcting Red Action**

## Assessment:

Customer now runs Measures on a daily basis and these are analysed once per month. Since last InSight review, further analysis was made and measure run and analysed. We were able to identify that a polling java process introduced by the Customer in the past year which produces instance transaction reporting, was not coded efficiently and was hogging CPU memory. With the assistance of TCM's application modernisation knowledge and experience we were able to develop a new solution so that Customer still got the benefits of the instant reporting without the process(es) consuming vast amounts of memory leaving them exposed to a possible outage.

Rating:



# InSight

- **The Process Continued: Correcting Red Action**

## Recommended Action:

Customer should keep running periodic measures and analysing results as well as continue to look for ways to modernise their current applications to benefit the wider enterprise and business.



# InSight

- **In Summary**
  - InSight provides a simple RAG assessment of 18 key areas of a NonStop System configuration
  - Provides useful recommendations based upon TCM's knowledge and best practices
  - Ongoing process: Make improvements / redo InSight report / TCM re-assess and recommend further action if required



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### Rating Overview

Area	Rating	Severity	Area	Rating	Severity
<a href="#">TMF Configuration</a>	Red	x	<a href="#">OSS Space</a>	Red	x
<a href="#">Disk Configuration</a>	Red	x	<a href="#">OS / Patch Release Management</a>	Red	x
<a href="#">DR Procedures</a>	Red	x	<a href="#">Third Party Products</a>	Red	x
<a href="#">Performance</a>	Red	x	<a href="#">Hardware System Logs</a>	Red	x
<a href="#">Security</a>	Red	x	<a href="#">File System</a>	Red	x
<a href="#">Backup Strategy</a>	Red	x	<a href="#">Network</a>	Red	x
<a href="#">Batch</a>	Red	x	<a href="#">Kernel</a>	Red	x
<a href="#">Operations / Monitoring</a>	Red	x	<a href="#">Pathway</a>	Red	x
<a href="#">Spoolers</a>	Red	x	<a href="#">CPUs</a>	Red	x

### Glossary

#### Ratings:

**Red** - Serious failure, high risk of service affecting issues, requires immediate action  
**Amber** - Not best practice, potential risk to service, requires attention and consideration

#### Severity:

**High** - Requires move from Red to Green rating  
**Low** - Requires move from Amber to Green rating  
**Opp** - Opportunity for improvement



# HOW TO GET InSight

- **Speak to TCM today, come find us at our booth**
- **Or reach out to your HPE NonStop Account Manager**





Questions?



TCM – The NonStop Experts

[www.tcm.co.uk](http://www.tcm.co.uk)