Application Note

# Cisco ICM/IPCC 7.0
# Upgrade Mitigation Strategies
# White Paper

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## 1 Introduction

This document describes mitigation steps customers and partners may take to avoid upgrade failures due to physical disk space limitations and/or estimated Logger/HDS migration times that exceed an acceptable maintenance window. To determine if the strategies detailed in this white paper are applicable for your deployment, refer to Chapter 5 of the Upgrade Guide for Cisco ICM/IPCC Enterprise & Hosted Editions, Release 7.0(0), subsequently referred to as the ICM/IPCC 7.0(0) Upgrade Guide. The audience for this document is anyone considering, planning, or executing an upgrade from ICM/IPCC 5.0(0) Enterprise or Hosted Edition or ICM/IPCC 6.0(0) Enterprise Edition to ICM/IPCC 7.0(0) Enterprise or Hosted Edition who has determined that his or her particular upgrade scenario does not fit within a predetermined maintenance window or exceeds the existing storage capacity.

## 2 Definitions

**Common Ground (CG) Upgrade:** Upgrades take place on the same hardware as the existing ICM/IPCC 5.0(0) or ICM/IPCC 6.0(0) release.

**IMPORTANT: Common Ground upgrades are only allowed if the existing hardware meets minimum requirements found in the Cisco ICM/IPCC 7.0(0) Enterprise & Hosted Editions, Release 7.0(0) Hardware and System Software Specification (Bill of Materials). This document is referred to as the ICM/IPCC 7.0(0) Hardware Specification throughout the remainder of this document.**

**Technology Refresh (TR) Upgrade:** Upgrades take place on new ICM/IPCC 7.0(0) Hardware Specification compliant hardware. All pertinent configuration information and data are copied over a network from the existing ICM/IPCC 5.0(0) or 6.0(0) hardware to the new ICM/IPCC 7.0(0) hardware.

**Enhanced Database Migration Tool for ICM/IPCC 7.0 (EDMT):** The new tool used to upgrade/migrate the Logger and HDS databases from ICM/IPCC 5.0(0) or 6.0(0) to ICM/IPCC 7.0(0).

## 3 Upgrade Problem Description

For a small percentage of customers, a Logger and/or HDS migration will: 1) take longer than the acceptable maintenance window or 2) exceed the available physical disk space on the target upgrade hardware. The following sections describe these problems in greater detail, and the remainder of this document provides strategies for working around both of them.

### Migration Exceeds Maintenance Window

Chapter 5 of the Upgrade Guide for Cisco ICM/IPCC Enterprise & Hosted Editions, Release 7.0(0) describes a procedure for determining roughly how long a Logger or HDS migration will take given several deployment-specific variables. These variables include hardware level, migration version, database size, and the database data distribution profile. Once collected, users can use this information to determine an estimated upgrade database migration time.

### Migration Exceeds Physical Disk Space

Having enough physical disk space to perform the upgrade could be a problem during a Common Ground upgrade. In most cases, the migration will use roughly twice the disk space currently in use. Chapter 5 of the Upgrade Guide for Cisco ICM/IPCC Enterprise & Hosted Editions, Release 7.0(0) provides a procedure that determines roughly how much disk space is required to successfully perform a migration.

**IMPORTANT: Migration times and physical disk space requirements are approximations and must be treated as such. The most accurate way to determine the migration time and/or the amount of physical disk space required to successfully perform a Logger or HDS migration is to mirror the production hardware and software environment as closely as possible in a test lab and execute EDMT on a backup of the actual target Logger and/or HDS database.**

## 4 Mitigation Strategies for Excessive Migration Time

### Reduce the size of the Logger/HDS database.

One approach to reduce the migration time for a Logger is to reduce the amount of data to be migrated. The best way to reduce the overall size of the Logger is to copy as much data to the HDS as possible and then purge the Logger of the copied data. The ICM purge facility, described in Chapter 3 of the ICM Installation Guide for Cisco ICM Enterprise Edition, Release 7.0(0), must be used. The goal is to reduce the overall size of the Logger database to 20 GB or less.

**IMPORTANT: Do not purge any Logger database below three days of data.**

**IMPORTANT: A maximum of 10 days of data (even less for larger databases) should be purged during any single purge event.**

**IMPORTANT: Make sure to set the Logger purge settings back to 14 days after manual purging is complete.**

EDMT handles the migration of the “copy/drop” tables differently than other ICM/IPCC tables during a Logger or an HDS migration (refer to Chapter 5 of the Upgrade Guide for Cisco ICM/IPCC Enterprise & Hosted Editions, Release 7.0(0) for a complete list of the “copy/drop” tables). If keeping records in the “copy/drop” tables is not a business necessity, consider using the ICM purge facility (mentioned above) to further purge these tables directly on the Logger and HDS. Tables like

t_Termination_Call_Detail and t_Route_Call_Detail could contain millions of records, and will take time to migrate. Purging all, or a significant portion, of these records will have a positive effect on both the Logger and HDS migration times.

**Transform the current HDS database into a data mining repository.**

Another way to reduce HDS migration time is to avoid an HDS migration altogether. In this approach, the current HDS is backed up and restored onto another physical database server, and then mined with T-SQL or a third-party data mining tool. The current HDS hardware is then rebuilt from scratch as a new ICM/IPCC 7.0(0) HDS database server.

Still another approach is to replace the current ICM/IPCC 5.0(0) or 6.0(0) HDS database server with a new HDS database server installed with ICM/IPCC 7.0(0). The old ICM/IPCC 5.0(0) or 6.0(0) database server is then used as a data mining repository. This approach has the added advantage of not requiring a database backup and restore.

**Reconfigure or upgrade Logger/HDS storage environments.**

Consider moving both the Logger and/or HDS server storage environments to RAID 1+0 for maximum data protection and performance. Make sure the hardware RAID controllers have as much on board cache (at least 256 MB) as possible for maximum I/O performance (refer to the ICM/IPCC 7.0(0) Hardware Specification for minimum hardware and software requirements).

**Simplify network topology.**

In the case of a Technology Refresh upgrade, directly connecting the source and destination Logger or HDS servers through a common, high-performance switch greatly improves the time it takes EDMT to back up and copy the source database to the destination Logger or HDS server. In addition, to avoid permission problems during backup and restore, ensure this switch has access to the active source server domain.

If both source and destination Logger or HDS servers support Gigabit Ethernet, consider using (even temporarily) a high-performance Gigabit Ethernet switch as the common switch described in the previous section. The performance advantages of Gigabit Ethernet will further reduce the time it takes EDMT to backup and copy the source database to the destination Logger or HDS server.

**Install one or more temporary HDS servers to provide uninterrupted Webview reporting throughout the migration.**

If real-time and recent historical reporting is critical for the proper operation of the call center, deploy one or more temporary HDS database servers. The temporary HDS servers then support the reporting load while the main HDS database server is upgraded. As long as the upgrade of the main HDS database server is completed within the Logger purge window (usually 14 days), the temporary HDS server can then be replaced with the upgraded HDS servers, and HDS replication then fills in all the data missed during the main HDS migration.

**Bring in temporary high-performance database migration hardware.**

In the case of a Common Ground upgrade, move (backup and restore) the Logger or HDS database from the production database server to a temporary high-performance (4 GB RAM, RAID 0, multi-processor) server to perform the upgrade. Once complete, move (backup and restore) the migrated Logger or HDS database back to the original production database server.

## 5 Mitigation Strategies for Physical Disk Space Constraints

**Reduce the size of the Logger/HDS database.**

One approach to reduce the space requirements for a Logger migration is to reduce the amount of data to be migrated. The best way to reduce the overall size of the Logger is to copy as much data to the HDS as possible and then purge the Logger of the copied data. The ICM purge facility, described in Chapter 3 of the ICM Installation Guide for Cisco ICM Enterprise Edition, Release 7.0(0), must be used. The goal is to reduce the overall size of the Logger database to 20 GB or less.

**IMPORTANT: Do not purge any Logger database below three days of data.**

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**Add physical storage capacity.**

If performing a Common Ground migration, consider adding to (or upgrading) the physical storage environment to higher-capacity disks prior to upgrading. For a Technology Refresh, make sure the new destination hardware has at least twice the allocated size of the source Logger or HDS database. For example, if the source HDS database to be migrated via Technology Refresh consumes 80 GB on the source database server, then the new HDS database server must contain at least 160 GB of free space prior to the migration.

**IMPORTANT: The upgrade or reconfiguration of database server physical disks causes Logger and/or HDS downtime, especially in cases where RAID 5 or RAID1+0 has been**

**deployed. As a result, this step should be done in a maintenance window separate from the actual ICM/IPCC 7.0(0) upgrade.**

**Transform the current HDS database into a data mining repository.**

One way to reduce the physical disk space requirements of an HDS migration is to avoid an HDS migration altogether. In this approach the current HDS is backed up and restored on to another physical database server and then mined with T-SQL or a third-party data mining tool. The current HDS hardware is then rebuilt from scratch as a new ICM/IPCC 7.0(0) HDS database server.

Another approach is to replace the current ICM/IPCC 5.0(0) or 6.0(0) HDS database server with a new HDS database server installed with ICM/IPCC 7.0(0). The old ICM/IPCC 5.0(0) or 6.0(0) database server can then be used as a data mining repository. This approach has the added advantage of not requiring a database backup and restore.

**Bring in temporary high-performance database migration hardware.**

In the case of a Common Ground upgrade, move (backup and restore) the Logger or HDS database from the production database server to a temporary high-performance (4 GB RAM, RAID 0, multi-processor) server to perform the upgrade. Once complete, move (backup and restore) the migrated Logger or HDS database back to the original production database server.

## 6 Reporting Considerations

If Webview reporting is mission-critical and there are a significant number of Webview users, the number of HDS servers determines the capacity of the Webview reporting environment. In this case, it may be necessary to deploy multiple temporary HDS servers to support the full Webview user load (refer to the ICM/IPCC 7.0(0) Hardware Specification for more information).

## 7 Summary

For most customers, upgrading from ICM/IPCC 5.0(0) or 6.0(0) to ICM/IPCC 7.0(0) will successfully complete without excessive time and resource constraints.

For a small percentage of customers, however, there could be business conditions or requirements that warrant the mitigation strategies presented in this document. Specifically, customers maintaining large amounts of data and strict maintenance windows within which to complete the ICM/IPCC 7.0(0) upgrade could fall into this minority. Additionally, customers who have large amounts of HDS data and wish to perform Common Ground upgrades may not have enough physical disk space to perform the upgrade. For these cases and others, this white paper provides the best known strategies for resolving both of these issues.