

An NER Data Corporation White Paper

Managed Print and Data Center Optimization Case Studies

Case Studies

Managed Print Services

Print Output Fleet Optimization Using
Print4 Manage Print Services 3

Print4 MPS Seamless Integration
Reduces Customer's Print Output
Costs..... 4

Data Center Infrastructure Optimization

Data Center Hotspot Elimination and
Energy Consumption Reduction
Accomplished Through Demand Based
Cooling 5

Data Center Assessments Provide
Actionable Resolutions That Reduce
Operating Costs and Eliminate
Unnecessary Expense 6

Introduction

This whitepaper discusses methods for improving efficiency in Data Centers and Print Output fleets.

NER's Infrastructure Optimization Solutions and Managed Print Services are core to improving standardization and optimization in their respective environments.

Our patent-pending Print4 MPS program delivers print output cost reductions and operational efficiencies. We engineered Print4 with business rules that provide seamless process integration into any print environment. Our solution efficiently manages assets, captures data, and acts on that data.

Data Center Infrastructure Optimization Solutions enable efficient management and optimization of data center assets and infrastructure while lowering total cost of ownership. Our primary focus is on data center power, space, and cooling.

Additional information about NER, our products, and our services can be found at www.nerdata.com

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Print Output Fleet Optimization Using Print4 Manage Print Services

Problem Statement

A major cosmetic manufacturer suffered from disparate business processes and platforms within their print output fleet. Management of the print environment monopolized IT and staff resources. Utilization of assets was unknown leading to uncontrolled costs and possible larger carbon footprint.

Process Approach

NER and NER's reseller partner worked together to bring an efficient an MPS solution the client. The client's print output fleet was analyzed using Print4's Discovery application and an onsite assessment. Each device was thoroughly examined for complete specifications, working condition, on-board features, environment, location, accessibility, and network capability. The Discovery application captured base-line usage levels and ran at determined intervals to track page volumes.

Collected data was imported into the TCO application to model the best usage application for the customer. Over utilized and underutilized devices were tagged, and end-of-life devices where indicated with comparable replacements. The fleet optimization recommendations which included good, better, best options where delivered to the client for review and approval.

Implementation

Upon approval the Print4 Onsite Client was installed on the client's network for communication testing and device monitoring. Underutilized and over utilized devices were redeployed to optimize output based on usage patterns detected during the assessment phase. Devices were configured to maximizes on-board features and reduce output costs. End-of life devices where decommissioned and sent for recycling. The redeployment process balanced the fleet to where decommissioned devices did not need to be replaced.

The Print4 Online portal was deployed for the client and configured for devices to have just-in-time service and supplies delivery. Print4 Online was also seamless integrated into the client's ticketing system. Alert events and service events where automatically routed to the reseller for fulfillment and the events were mirrored in the client's ticketing system for audit purposes. Key personnel were trained on the Print applications as well as proper usage of the output device.

Benefits

The client now has standardized business processes and platforms, lowered print management and help desk costs, gained higher asset utilization, and reduced their carbon footprint. Through regular business reviews, the reseller is able to demonstrate 30% cost reduction in print output within one division and 15% overall cost. The program was implemented with minimal infrastructure changes and no capital expenditures. Soft dollar coasts savings include a 49% reduction in help desk calls and greater productivity through improved printer uptime. The client's carbon foot print was reduced by decommissioning end-of life devices and maximizing power save, duplexing and toner management features on deployed devices. Regular business reviews are helping the customer to continually right-size the fleet based on changes in the client's corporate environment.

Print4 MPS Seamless Integration Reduces Customer's Print Output Costs

Problem Statement

A nationwide foresting operations company that provides a wide range of industrial lumber products across the country realized that costs and inefficiencies within their printing fleet were spiraling out of control and started looking for ways to cut costs.

Process Approach

NER and NER's reseller partner were engaged to conduct a thorough fleet assessment. During the fact finding process it was discovered that much of the customer's fleet was outside of their corporate headquarters, and that much of their remote locations were in harsh environmental conditions. The customer was looking to put controls within their fleet to allow them the ability to access fleet information nationally, cut their spending and create efficiencies outside of using Excel spreadsheets. The assessment indicated that the customer's goals could be achieved through an enterprise deployment of Print4.

Implementation

The data collected during the assessment was imported into the TCO tool for analysis. It was determined that the Print4 Solution could be tailored with business processes that integrated with the customer's infrastructure. This integration allowed the customer to do a gradual culture shift without disrupting their business practices. The Onsite tool was installed on the customer's network to monitor the fleet and was configured with the collected printer information. The Print4 Online portal was deployed and provided the customer's internal management visibility to the fleet and direct access to fleet related data in real time. The portal was configured so the fleet had just-in-time service and supplies fulfillment. This automated fulfillment removed much of the burden from the customer's internal teams to allow them to tackle mission critical projects. Ongoing quarterly business reviews are providing valuable metrics to make business related decisions based on data rather than conjecture.

Benefits

Overall, hard dollar savings totaled over 20% at a value of \$100,000 per year due to controls put in place. Downtime was also dramatically reduced even in their harsh environments through an efficient, structured preventive maintenance program. By better understanding the conditions and analyzing the data, the new preventative maintenance was able to be performed once per year instead of 2-3 times per year as in the past. In addition, soft dollar cost saving were also realized through the reduction of order processing, vendor management, and IT asset rationalization. This Print4 deployment has been the single most cost effective solution the customer has put in place to date.

Data Center Hotspot Elimination and Energy Consumption Reduction Accomplished Through Demand Based Cooling

Problem Statement

The client's data center was experiencing hot spots up to 87° F at some server racks due to placement relative to UPS gear. Racks were placed too close to CRACs to get cooling and there was a negative pressure area in the center of the room. Blanking panels were absent in some key racks. One of the CRACs had been running 100% compressor duty cycle for months and there was fear of failure with no backup. Energy usage was higher than expected in this unbalanced room.

Process Approach

CFD simulations and physical observations showed that large amounts of UPS heat were overcoming any available cooling in one area even though 56% tiles were installed there. In another area where racks were too close to CRACs the heat drawn by the CRAC was being distributed into the cold aisle. In yet another area negative pressure was caused by slightly offset CRACs creating a vortex. Blanking panels were needed in some racks

Implementation

A total of 6 HotSpotr airmovers were used to correct overheating conditions and help to balance the CRACs. Blanking panels were installed in several key racks. After installation the average rack temperature was reduced by 7.9 degrees and the CRACs were now balanced. The installation also included a Cooling Resource Manager with 60 temperature sensors feeding back real time temperature data to control the flow tiles and provide an instant SNMP messaging system to the customers Castlerock™ BMS monitor.

Benefits

The CRAC that had previously been running at 100% duty cycle throttles itself back to normal duty cycles. The energy usage for cooling was reduced by 24%. Implementation was completed with zero downtime to the client's infrastructure. The return on investment was less than 12 months.

Data Center Assessments Provide Actionable Resolutions That Reduce Operating Costs and Eliminate Unnecessary Expense

Problem Statement

A large government agency contracted NER to perform a Data Center Assessment of one of their primary data centers located in Minnesota. The customer was a large test site for an OEM promoting water cooled cabinets. Through the customer's own due diligence they had determined that water cooled cabinets were not a fit for them for wide scale adoption. They were looking for alternative ways to reduce their tons to wattage ratio while maintaining or improving equipment input temperatures. The customer was also seeing large amount of carbon fibers throughout their data center which they did not know the cause.

Process Approach

Our team of Technical Specialists provided a full on-site evaluation the data center. Our assessment survey which included a Computational Fluid Dynamics (CFD) study, looked at over 230 issues with a focus on data center layout, data center design, conditioned air delivery , conditioned air delivery capacity, cabling Infrastructure, and power infrastructure.

Implementation

During the on-site portion of the assessment, NER was able to determine that the carbon deposits were the result of over-utilized belts in the CRAC units. We noticed that the customer installed more robust filters in their CRAC units that caused the belts in the units to work considerably harder to pull air through the units, thus causing an even larger amount of carbon build-up throughout the data center space. When the belts were changed and the filters changed back to OEM recommended versions, the carbon deposits were eliminated. Based on the CFD findings we were also able to identify and address airflow issues by making minor adjustments to the room layout, installing proper airflow management products (blanking panels, baffles, grommets) and deploying two Hotspotr overhead airmovers.

Benefits

The assessment pinpointed the cause of carbon issues which eliminated the need for a separate carbon emissions study; estimated cost savings was between \$75,000 and \$125,000. By applying recommendations from our CFD results, the customer was able to realize CRAC unit redundancy and reduce the number of operating CRACs from 15 to 12. Shutting off 3 CRACs reduced cooling by almost 90 tons with a projected energy savings of \$90,000 per year. The customer also was able to shut off 255 rack top fans removing approximately 20 kW worth of mechanical load off of the UPS systems, and freeing up power and providing an additional energy reduction at the location. The overall duration of this project was 47 days.