



MOTHAPO
SYSTEMS

Company Profile

Beyond

Infrastructure Optimisation Solutions

Introduction

Founded in 2003, Mothapo Systems is an infrastructure solutions provider specialising in highly available, scalable, redundant and manageable turnkey solutions for ICT environments.

We are industry-leading providers of data centre-, server room- and BTS solutions, ranging from in-house developed and manufactured products to integrated software and hardware solutions. We plan, design, engineer, source, install, implement, monitor, and maintain these solutions across a broad array of functional areas.

Our integrated management solution provides real-time, complete data centre monitoring and remote visibility, allowing data centre managers and facilities operators to evaluate and manage infrastructure and energy use, while reducing their risk of downtime and energy costs. This ground-breaking, green energy solution comprises an integrated suite a specialised hardware and software designed specifically for ICT centres.

Mothapo Systems offers the benefit of over 80 years of combined experience in the field of infrastructure provisioning for Information- and Telecommunication Technologies, and our business associates benefit from our experience in dealing with end-users, subcontractors and vendors, bringing an understanding of these environments to many projects.

We have spent the past seven years investigating possible solutions to address the requirements of data centres, and with the deterioration of local power supply, we've concluded that a distributed approach is for the short to medium term the best possible solution to maximise system availability, whilst maintaining full data centre functionality.

Mothapo Systems has developed an Infrastructure Optimisation Solution (iOS) specifically aimed at the data centre industry to immediately improve data centre energy efficiency, achieve immediate and significant cost reductions and improve overall facility performance, with the intention of helping clients move towards Green IT and to take advantage of the financial benefits that may arise from the exercise.

iOS – Infrastructure Optimisation Solution

The Mothapo iOS protocol delivers a set of methodologies, audits, computational tools and outcomes which pinpoint areas of improvement in a data centre's IT and Facilities infrastructure.

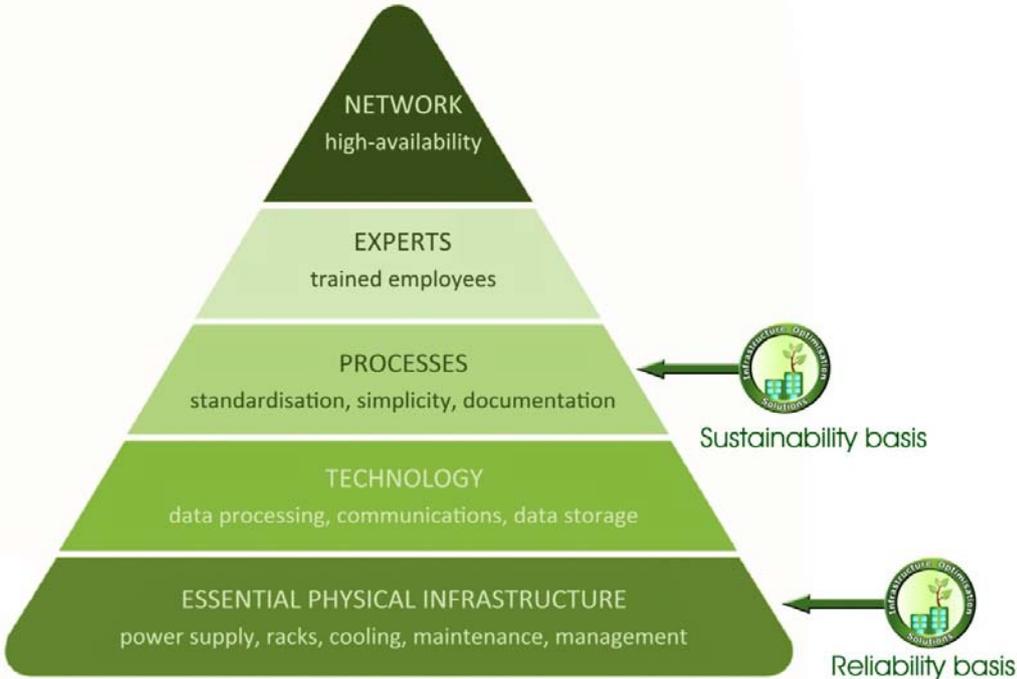
On completion and implementation of the findings and recommendations Mothapo is able to:

- Dramatically reduce the costs of data centre power and cooling (between 20 and 50%) by identifying opportunities to rebalance air delivery, eliminate unnecessary cooling or claw back Eskom capacity.
- Increase data centre life cycles by delaying or eliminating the need for new rack space and data centre build-outs.
- Deliver enhanced day-to-day service by improving data centre efficiency, reliability, and uptime.
- Gain immediate visibility into data centre power and cooling - what you're using, where it's going, and what it costs.
- Identify data centre cooling and power inconsistencies at rack level
- Immediately reduce data centre power costs by rebalancing the load and limiting unnecessary over-provisioning.
- Make informed decisions on where to deploy new application servers on a timely basis and optimize for data centre power, cooling, and space.
- Delay purchasing additional rack space, power, and cooling by identifying zombie equipment and intelligently deploying equipment.
- Bill clients or users for actual Eskom usage where applicable



The key to iOS achieving immediate potential reductions in data centre energy costs is to be able to precisely map the energy demand over time throughout the entire facility and accurately highlight areas where demand is under or over utilised and make adjustments accordingly.

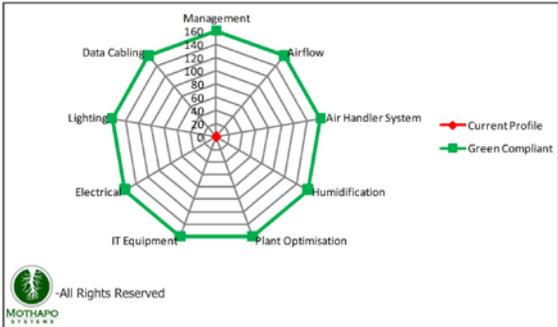
Our comprehensive iOS programme achieves precise analysis of a data centre's exact energy and environmental demands and overall operating efficiency, enabling us to make highly detailed, informed and quantifiable recommendations on improving a site's operational energy efficiency against predicted targets, which comply with and exceed environmental regulations.



Phase 1 — Audit

We conduct a Green IT Assessment Quantify energy use, costs and carbon emissions to provide an accurate assessment of typical operations within a client's data centre. Amongst others the following areas are addressed:

- Management and Organisational Best Practices
- Technical Best Practices
 - Airflow Management
 - Air Handler Systems
 - Humidification
 - Plant Optimization
 - IT Equipment
 - Servers including Blades
 - Racks and Eco Racks
 - Monitoring and Control Systems
 - Access Control
 - UPS and Power Management Systems
- Electrical Infrastructure
- Lighting
- Commissioning and Retro commissioning



The processes, guidelines, tools, methodologies used and recommendations are presented in a formal document at the completion of the process:

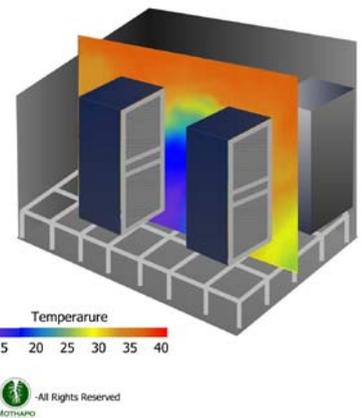
- Identify opportunities for improvement and quick low/no risk wins associated with carbon and energy use.
- Collect and analyse data on energy use and environmental conditions via our 'non-invasive' data collection systems to assist us in providing recommendations, savings calculations, risk assessments and deployment initiatives on power and cooling efficiency improvement programmes.
- Computational Fluid Dynamics (CFD) modelling identifies air and temperature patterns to highlight problematic areas. A set of recommendations are provided, optimising the environment and thereby re-introducing balance into the dynamic facility.
- Produce a comprehensive technical report detailing the work and the conclusions, with graphical analysis and spreadsheets to help meet corporate targets to help justify any changes to be implemented and quantified against PUE and ROI metrics.
- Develop a structured carbon management strategy and implementation business plan, addressing short and longer term opportunities.
- Specify best practice energy management policies and strategies, identifying both existing and up and coming energy and environmental regulations, to identify and quantify impacts.

Phase 2 — Implementation

- Define total savings and savings per area for longer term energy saving initiatives.
- Implement quick hit improvements against targeted and agreed milestones following Phase 1.
- Implement energy monitoring and targeting systems.
- Implement an energy management programme in line with the carbon management strategy and implementation business plan.
- Develop energy and carbon reports.
- Implement a regulatory compliance programme in line with the Carbon Reduction Commitment scheme, a new legally binding climate change and energy saving scheme.
- Further develop the business case for longer term efficiency projects.
- Provide training for key staff and ongoing support to ensure the effective use of the data.

Phase 3 — Lifecycle Management

- Sustain improved performance with ongoing audits and regulatory assessment.
- Find and develop new opportunities for energy efficiency.
- Assist with regulations and best practice policy compliance, covering comparison analysis to understand governmental changes and their impacts.
- Support for an ongoing energy management programme for longer term energy savings.
- Develop additional complex and longer term projects to increase performance and reduce costs.



Documentation service

After the completion of these phases it is essential to ensure that the infrastructure is maintained in its new, efficient state. Besides the system provided by Mothapo System to measure PUE, DC iE and Carbon Footprint, certain best practises have to be complied with on a daily, weekly or monthly basis. For these tasks and procedures to be adhered to, and in accordance with accepted best practises, Mothapo systems provides bespoke documentation tailored to each installation.

Among the subjects addressed are the following:

MS0001	Master List - Energy Efficiency Actions
MS0002	Data Centre Standard Operation Procedures
MS0003	Access Control Procedures
MS0004	Change Management Procedures
MS0005	Data Centre Rules, Policies
MS0006	Energy Efficiency Management Process
MS0007	Air Management Data Collection Process
MS0008	HVAC Check List
MS0009	Power Checklist
MS0010	UPS Checklist
MS0011	Fire System Checklist
MS0012	Shift Change Checklist
MS0013	Human Aspect Checklist
MS0014	Facilities and Amenities Checklist
MS0015	Job Descriptions Operations Manager et al (up to 3 job descriptions)
MS0016	Self - Benchmarking Guide

In conclusion

Mothapo Systems has experience in designing, building, and installing data centres, server rooms and technical spaces and various other monitoring intensive control facilities. We can provide a turn-key solution by handling everything you need to help you make the most out of your available space. We start by analysing your specific needs and goals for the project including the operational requirement, space limitations, time constraints and budget objectives. With your goals in mind, our team of consultants and engineers develop possible configurations. Working closely with you, we make the necessary revisions to initial design concepts to arrive at the best possible solution for your particular operation.

Contact us

Sales	sales@mothapo.co.za
Website	www.mothapo.co.za
Telephone	+2711 462 1265
Fax	+2711 704 5625