



Case Study – Network Based Lighting Management Systems for Intelligent and Smart Buildings

Client – NetApp India Pvt Limited – Bangalore



NetApp, Inc. (NetApp), incorporated in April 1992, is a provider of storage and data management solutions that help accelerate business breakthroughs and deliver outstanding cost efficiency. The Company has a portfolio of application, virtualization, cloud, and service provider solutions.

The company is a vendor of data storage systems used by businesses for archiving and backup. Its devices can be used in network-attached storage (NAS) Fibre Channel and IP-based storage area network (SAN) settings. NetApp's On Command software product facilitates storage systems management while other applications protect against data loss and protection.

NetApp's new facility in Bangalore makes the best use of ambient and artificial lighting with latest Network based Lighting Management Systems.



NetApp's objectives for their new facility in Bangalore:

- To reduce lighting energy consumption.
- To enable automatic switch-OFF / ON at a particular timings, in different areas on working days.
- Maintain illumination levels consistent with the requirement of the application.
- Provide IP based control of lighting from a Clients Intra network.
- Keypad based control for individuals in relevant open office areas.
- Control operation possibility through internet.
- Integrating Lighting and A/V System through IP based controller.
- Meeting rooms are equipped with scene setting controls that staff can customize to suit different kinds of meeting and personal lighting control.

Wipro's Solution:

Wipro worked on providing a Lighting solution along with a Lighting Management System to control the desired parameters and help the client in achieving their objectives. Installation of the Lighting Management System (LMS) included fluorescent lighting fixtures with electronic dimming ballasts and high performance lamps and installing, low voltage controllers, Keypad based individual controls for open office area, meeting rooms and Quantum control hardware by using local Intra network.

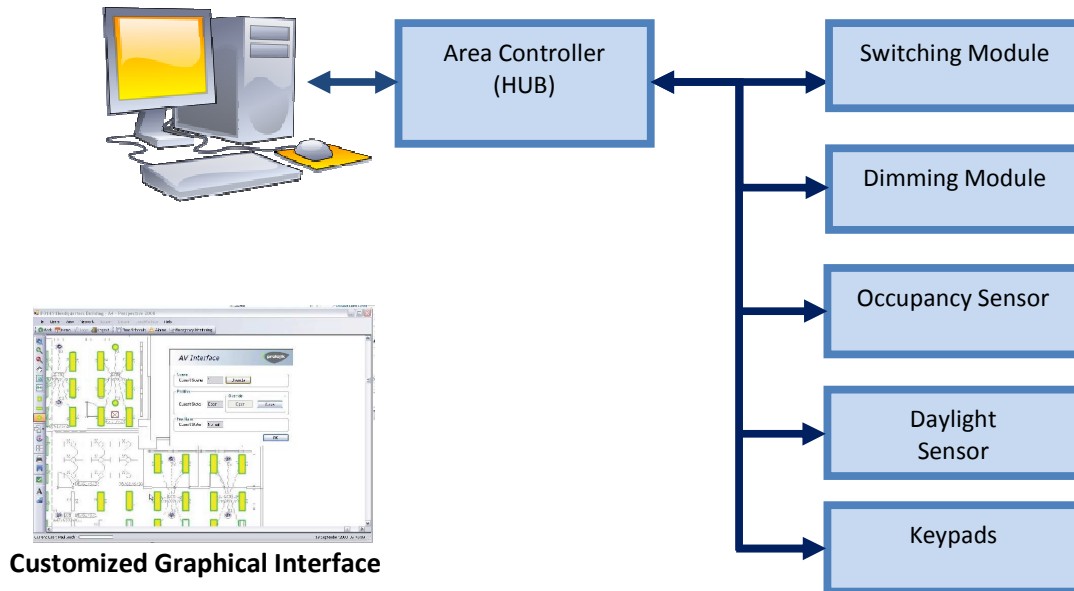
The solution was centered to address the following –

- Lighting Levels to be maintained as per application requirement
- Mechanism to control the entire lighting in the building from a single floor / point for intelligent management of peak/non peak lighting energy demand
- Time scheduled switching in areas/zones which had predefined or specific working hours
- A/V Integration with lighting for hassle free operations in conference / Meeting rooms through specified clients IP



The Wipro Solution – Network based lighting control system

System Architecture –



Occupancy Sensors for switching the lighting based on occupancy. Sensors provided were with dual technology sensing for wider area coverage as per the client's needs

Day Light Sensors for dimming the lighting based on daylight contribution

Scheduling – Time based ON/OFF of lighting as per the client requirement






A/V Integration – Seamless Integration with A/V system from a single control point for all Meeting / Conference rooms on all the floors

Load Shedding – Switching Off lighting loads for any given area from the PC, when not required

Reports and Trends – This helps the client to study the current area wise energy consumption pattern, occupancy data and helps in planning the facility energy (Lighting) and occupancy needs.



System Elements and Features –

System Component	Function	Picture
Sensors	Switching and Dimming	
Switching Module	Switching	
Dimming Module	Dimming	
A/V Interface	A/V Integration	
Lighting Hub with Software	User Interface for Control	 <p style="text-align: center;">Hub</p>



Benefits to the client –

LMS delivered energy savings exceeding customer expectations through the deployment of the following energy management strategies:

Personal Control - Control of personal lighting space from particular lighting interface

Smart Time-scheduling - Time scheduled switching based on zones as small as an individual workspace like

- *All Floors Passages Lights ON at 7.30 A.M and OFF at 10 PM*
- *All Floors Work stations Lights ON at 8 AM and OFF at 7.30 PM.*
- *Cafeteria Lights ON at 5 PM and OFF at 10 PM*
- *All Floors Lights OFF during Saturday and Sunday.*

Variable load shedding - Intelligent management of peak/non-peak lighting energy demand from central control software

A/V Integration – Integration with A/V system from a single IP address for all meeting /conference rooms on all the floors.

Wired Keypads - The system is divided into Keypad zones, allowing the lighting to be controlled in relation to individual areas, imposing the same control strategy on entire floors.

Meeting room Keypads: The flexible design allows the number of buttons and scene setting controls that staff can Adjustment of individual light levels according to their personal preferences.

Lighting quality was improved by elimination of over-lighting in many areas. Individuals were able to control the light levels in their workspace by use of the personal control software.

The project realized the following results:

- Maintained recommended light levels in all controlled areas
- The system has provided reduced energy costs, longer lamp life and extended luminaire maintenance periods
- The system provides automatic switching OFF/ON lighting of whole building at precise timings, freeing maintenance staff from manual Switching ON/OFF.
- Long term monitoring of the lighting operation



- The system’s overall operation and benefits from reduced energy consumption, improved working environment, light quality and ease of use have impressed staff at the site.
- Integration with A/V system from a single IP based control point for all the meeting /conference rooms of all the floors which helps in hassle free operation of all A/V and lighting sources
- Personal tuning of Lighting is conducted by a 5 button keypad with riser for quick and easy adjustments at the meeting rooms.

Project Credits:

Client	NetApp India Pvt. Limited, Bangalore
Occupancy Type	Office Type
Built Up Area	2,00,000 Sq ft
Location	Bangalore
Architect	dwp interics Pvt. Ltd. Bangalore
Consultant	Dhruva Engineering Consultant, Bangalore
PMC	Cushman & Wakefield India Pvt. Ltd.
Lighting	Wipro
Network Based Lighting Control System	Wipro

Wipro would like to answer any queries or questions you have on Energy Efficient lighting, stand alone and network based Lighting Control systems related topics. Please feel free to contact us on helpdesk.lighting@wipro.com. You can also visit our website www.wiprolighting.com for more information.