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| BRR | February 10  2016 | |
| Making Facility Management more intelligent and efficient. | | System Definition Review |

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| 1.0 | 07.03.16 | Arshad Shakil,  Badis Madani,  [Håkon Hedlund](https://www.facebook.com/hakon.hedlund)**,**  Zhili Shao |  |

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# Identification of design concepts

1. **Cloud computing for all facilities**

In this design concept, the data collected from different sensors in different buildings will be sent to the cloud where the client could download specific information about the current state.

cloud-based facilities management platform that enables the sharing of resources by providing the connectivity and inter-operability among diverse resources and also managing these resources in a more effective manner.

key challenges that are discussed next:

• Providing inter-operability.

• Timely Analysis of Data.

• Standardization of Data Formats.

• Simultaneous Access of Software Tools.

1. **Standalone server for each facility**

In this design concept, the data collected from different sensors in a building will be sent to a server located in the same building to be processed. There will be no interoperability between different facilities or buildings. **(DDC)**

1. **Many controllers in each facility**

In this design concept, there will be no data transmission. Each controller will be programmed to make the necessary decisions in its area of operation. Will have the inputs from the sensors and gives an output command to regulate.

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HVAC is the heart of many of the systems in the structure. The HVAC system often determines the happiness of the people who come in and out of your building every day or night.

It helps keep people cool in the summer. It provides a barrier against extreme weather conditions in the winter months. And it keeps people healthy and safe by monitoring and handling levels of naturally occurring pollutants throughout the building. But with the complicated systems of today, it can be difficult to maintain control of hundreds of interrelated systems without computer assistance. That’s where Direct Digital Control (DDC) systems come in.

Today’s standard for monitoring indoor environmental conditions, DDC systems evaluate inputs like temperature and humidity levels, and send outputs that control heating valves and regulate outside air. And with the proper design parameters in your structure, DDC systems will save you money via reduced energy costs. Here are three benefits of using DDC for your HVAC system.

(1) Central monitoring and control. With DDC systems, your operators can monitor and change system operations instantly, from one central location.

(2) More accurate energy management. DDC systems use electronic rather than pneumatic sensors, enabling higher degrees of accuracy with temperature control, leading to significant energy savings.

(3) Improved data analytics. As a building operator, you’re always looking for data that can help you streamline building systems for optimal performance and efficiency. DDC systems include data management and analysis tools that show you trends for critical or problem areas and help you make future improvements.

**What is a DDC?**

It is a control system that uses a computer or many computers linked together via a network that control the infrastructure of a building. DDC control consists of microprocessor-based controllers with the control logic performed by software. Most systems distribute the software to remote controllers to eliminate the need for continuous communication capability. The computer is primarily used to monitor the status of the system, store back-up copies of the programs and record alarming and trending functions. Complex strategies and energy management functions are readily available at the lowest level in the system architecture. The central diagnostic capabilities are also a significant asset.

***2nd definition:*** An automated control of a condition or process by a digital device that will also communicate.