HWG Sababa

DATA CENTER: architecture is everything



Architectural design is the heart of data center design. The HWG Sababa method results from 30 years of experience in the field, ensuring maximum safety and effectiveness.

A global market that, in **2023**, has reached almost **300 billion dollars**, with an estimated 530 billion for 2030, at a compound annual growth rate (CAGR) of 10.72% (source: Exactitude Consultancy 2024). These numbers highlight the evolution and **growing demand for data retention** and development infrastructure. This is also a growing demand in the Italian market, where the value of data centers was 3 billion euros in 2023, with the CAGR expected to be 3,29% until 2028.

Among those numbers, however, there is a tendency to be carefully analyzed, especially nowadays, in the so-called 'cloud era'. This would suggest a move away from on-premise infrastructures; not few companies and organizations show a return to established traditions, with a solid attachment to intellectual property and data, symbolized by the need to 'see and touch' their servers. This confirms that cloud adoption is not a one-way street towards the abandonment of physical infrastructure: the intermediate solution – the hybrid one, c**ombines on-premise and cloud services** – enabling enterprises to leverage cloud vendors' computing power and storage space in a flexible and scalable way.

The detail of the market

Analyzing the market's segmentation by type, **colocation emerges** as a data center structure where a company can rent space for servers and other computing hardware. Their market share is **34%**. **Hyperscale** data centers stand for **29%** of the market, showing a trend towards large-scale structures capable of handling vast volumes of data.
Colocation also stands out in Italian detail, with **654 million** euros in value connected in 2023. The public cloud also shows significant growth, with a value of 450 million euros. Finally, despite restrictions on its market share, it should be noted that on-premise data centers continue to be the most widespread, with a turnover of **1.9 billion euros**.

Data reflects a transformation in how companies approach ICT infrastructures, prioritizing **solutions that offer scalability, efficiency, and reduced operating costs**.
These requirements can be met by a working method that revolves around a specific element: the architectural design of the data center, regardless of the suggested solution.

Keeping the bu siness away from problems

To meet these needs – scalability, efficiency, and low costs – companies have added a request: “not to have problems”. It may seem self-explanatory, but it's the only way to overcome the vision of **infrastructure** as a mere cost, turning it into an **essential investment for the future of business**.



Therefore, the company must understand that a secure and well-structured network not only prevents future problems but can also be a catalyst for growth and innovation. By investing in robust infrastructure, companies protect themselves from imminent risks and lay the foundations for greater efficiency and competitiveness in the market. This creates a significant distance between business activity and potential issues, ensuring a safer and more stable operating environment.

“With thirty years of experience in data centers, we have learned the importance of a solid infrastructure architectural design, which should never be perceived merely as a cost"
explains **Alberto Ascari** (Head of Infrastructure Services)

This process begins by carefully paying attention to the company's requests and specifically analyzing them.

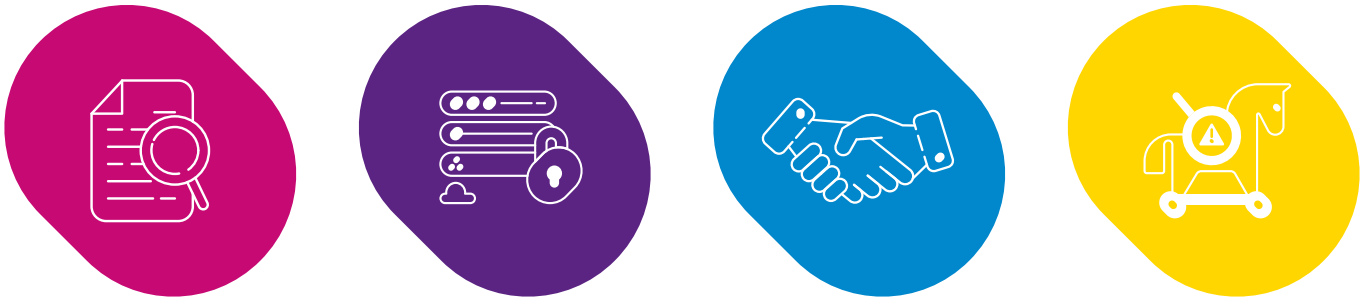
Therefore, listening and understanding are the starting points toward one crucial step in creating a data center architectural design: **workload analysis**.
This is one of the most complicated stages of the process, without which it is impossible to size the systems correctly.

“Using a structured framework, we create an architectural model that becomes a reference point for all customers – continues **Ascari** -. *This requires time, dialogue with subject experts, and carefully evaluating available resources. In this phase, it is crucial to interact with the company's internal stakeholders, understanding each sector's specificities and problems. In addition to an accurate understanding of the workload, the goal is also to predict business development in the medium term, considering a depreciation of the systems over 3-5 years within the defined budget”.*

This approach results in a double guarantee: optimal technical implementation and sustainable resource management. It seeks a necessary and virtuous balance between digital innovation and financial prudence, all without ever losing sight of data security, retention, and availability, objectives to be pursued by every possible means.

Method as added value: the experience of HWG Sababa

Adopting a **structured and repeatable method** is crucial to ensure the success and sustainability of the offered technological solutions. The framework provided by HWG Sababa starts with risk analysis and is divided into four main pillars:



Requirements **Constraints** **Assumptions** **Risks**

Therefore, these elements allow us to minimize uncertainties during the project's development, thus avoiding the unpleasant need to require additional investments to the customer due to omissions.

As he explains, *"the process is complex and has critical aspects to it: an obvious one regards the correct evaluation and sizing of the effort needed to respond not only to the company's current needs, but also to its future growth. Foreseeing the evolution in the medium and long term allows us to conceive* ***flexible and scalable architectures*** *that can adapt to increased requests without requiring radical interventions or expensive updates. That is why it is right to create systems that are never used to the limit of their capabilities but that have space to absorb peaks of work or future expansions, always considering the hybrid cloud's peculiarities".*

An architectural design that contemplates scalability implies a strong awareness of related risks, such as potential compatibility problems with any new component and a situation that may require specific actions to ensure the integrity and efficiency of the system. This makes it essential to have solid anchoring in best practices, which are combined with the listening and understanding mentioned above.

These two elements materialize the proposed method by identifying and involving stakeholders and SME (Subject-Matter Experts) companies, with which it would be possible to offer **tailor-made** solutions for customers. On the other hand, best practices are simple and basic rules and customs that are never to be taken for granted.



Ascari explains,
"There are aspects that might seem trivial but are fundamental for the stability and safety of the entire system. It is crucial, for instance, to ensure that systems are fully redundant to prevent interruptions and ensure business continuity in all circumstances. Once the infrastructure is set up, it is equally important to keep it up to date for all its components. The order in the datacenter is just as important, starting from the systems. The labeled and well-placed cables avoid time-consuming or errors during changes or infrastructure maintenance, with adequate documentation provided.

The role of experience

The method applied by HWG Sababa finds its roots in **thirty years of experience** and capitalization of the knowledge acquired over this period, integrating and synthesizing the lessons drawn from various contexts and collaborations with customers.

Ascari concludes that,
*“being a system integrator, we have always preferred to follow trends simply by taking a careful and proactive look at the continuous evolution of the market and new emerging technologies. This allows us to **anticipate the sector's needs** and quickly adapt to various changes, suggesting current solutions and ones that can provide companies with a **lasting and competitive advantage**”.*

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