



2022 SCOSS ANNUAL REPORT FORM

NAME OF THE REVIEWED INFRASTRUCTURE: Redalyc/AmeliCA

APPLICATION FORM: [Redalyc/AmeliCA Application Form](#)

YEAR IN THE CYCLE:

1/3

2/3

3/3

1. Discuss the status of the most important activities and milestones planned as specified in the Application Form (see section 6 of the Application Form). If there are important omissions or milestones that have not been achieved, please explain in the Additional comments section below.

You can keep the structure of your application or organize the milestones in main fields, such as Governance and Sustainability”, “Community Development”, “Technical Development”, “Pledges and Grants”.

Activity/Milestone 1

Revision and updating of technical requirements according to user demand at the moment. Architecture and technical parameters are adjusted to updated requirement analysis.

Status:

Several working meetings were held with the Unit of Information and Technology of the Autonomous University of the State of Mexico and the external technical providers to adjust the technical proposal. The technical design was updated to meet the current needs. Physical technology from Huawei was selected to meet the requirements.

Some of the reasons for the selection of this technology include:

- Zero Carbon DC. It is an inevitable trend to maximize resource saving (such as energy saving, footprint saving, water saving, and material saving) in the entire life cycle of data centers. In the large data center facility, thermal energy recovery is a new energy saving solution.
- Scalable. The lifecycle of IT equipment is generally 3 to 5 years, and the power density is roughly doubled every 5 years. The lifecycle of data center infrastructure is 10 to 15 years. The infrastructure must support elastic architecture and phased investment, and meet the power evolution requirements of two to three generations of IT devices.
- Simple Architecture. With the prefabricated and modular design, the data center features fast deployment, elastic capacity expansion and efficient energy saving.

- Air In and Water Out. The modular Indirect Evaporative Cooling system adopts an integrated product design, which shortens deployment time, while fully utilizes natural cooling resources, it greatly reduces the power consumption of the cooling system.
- Fully Digitalized. With the increasing digital transformation, digital, communications, and AI technologies are increasingly applied. Digital twin technologies will become more widely used throughout the lifecycle of the data center from planning, construction, maintenance and optimization, making all data center visible, manageable, and controllable.
- AI Enabled. With the continuous improvement and widespread application of IoT and AI technologies, data centers will gradually replace manual operation such as repetitive work, expert experience, and business decision-making to AI based autonomous driving.
- Secure and Reliable. The data center must implement system-level, component-level, and device-level predictive maintenance. The data center must have six features: hardware reliability, software security, system resilience, security, privacy, and always online availability. Hierarchical defense ensures data center security and trustworthiness.

The solution of the server’s configuration was updated according to the technical requirements. It includes:

1. Power supply
2. Networking devices
3. Storage solution
4. Servers
5. Physical data centre plans

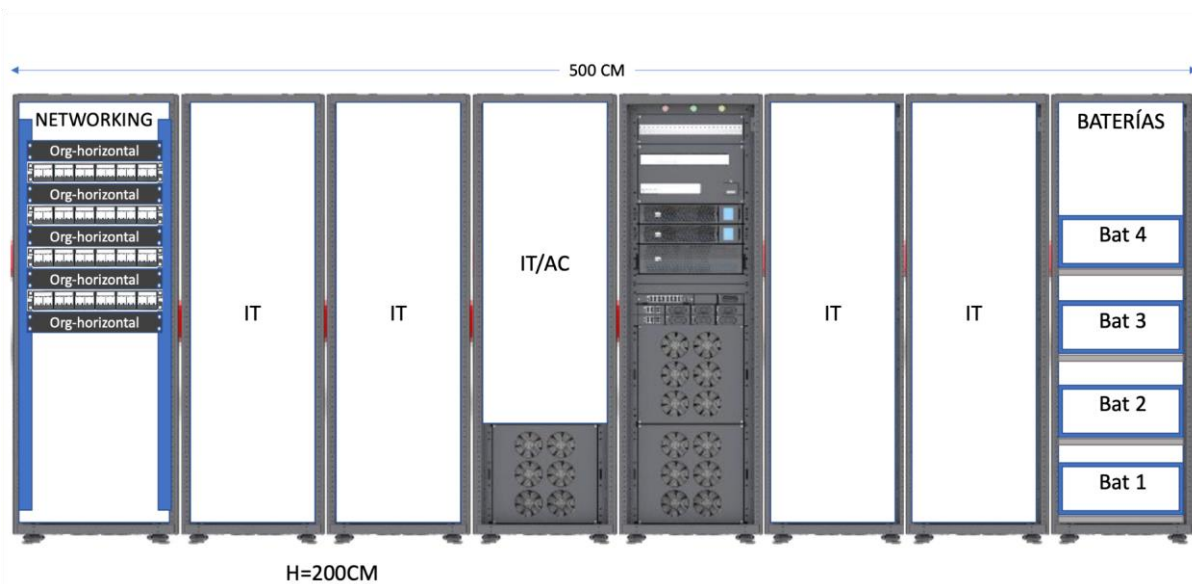
The following appendices provide the detailed information:

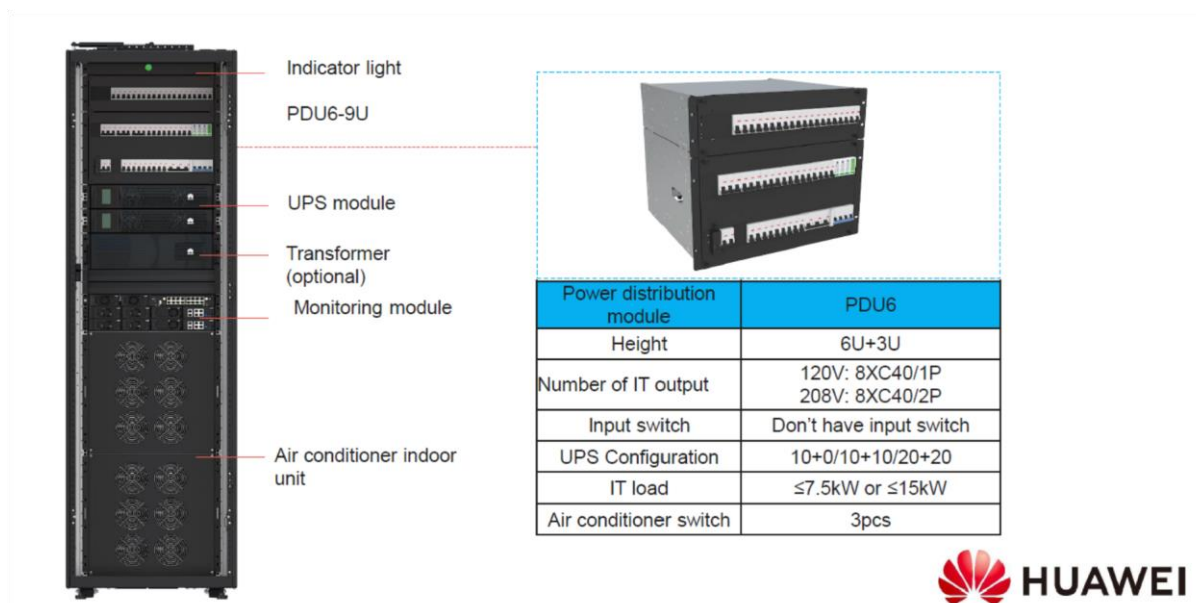
Appendix A. Technical solution for the data centre.

Appendix B. Storage dimensioning

Appendix E. Electrical diagram

Appendix F. FusionModule2000 Smart Modular Data Centre Datasheet





Huawei solution for the racks of the data centre

Activity/Milestone 2

Acquisition process

Status:

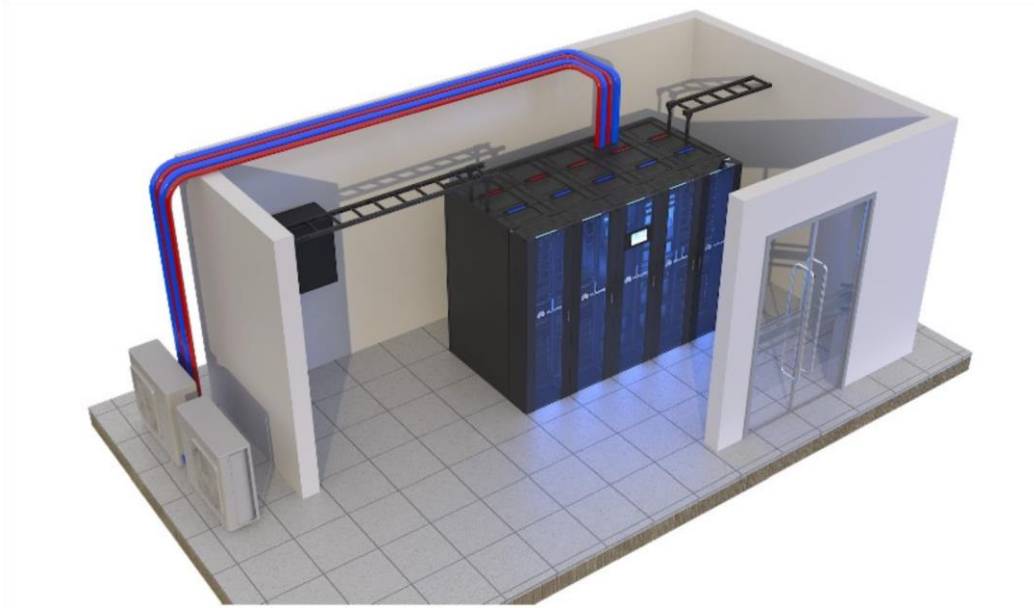
The procedures regarding the acquisition of the solution were postponed until enough funds are raised. Once the resources are available, the UAEM will carry out a public tender in accordance with the current law of public organizations in Mexico.

Activity/Milestone 3

Data centre preparation for hosting servers and communication devices. Activities such as the implementation of cooling systems, internet services contracts established, and electrical site installations are performed.

Status:

The Direction of Technology and Information (DTIC) of the Autonomous University of the State of Mexico will provide the physical space of 20m² for the purpose of building an independent data centre for Redalyc and AmeliCA next to the one in DTIC. Appendix C provides the updated quote on the solution for the data centre. The procedures to select the provider are being held by the university. Appendix D provide information about architectural plans for the data centre.



Data centre for Redalyc and AmeliCA

Activity/Milestone 4

Extension the journal workflow tools

- To extend the journal workflow tools to the community of authors with the aim to prevent journals to flip their business models to an APC-based one, so the workload at journals' internal processes will be diminished due to the involvement of authors. Author's role in



journal processes will be broader. The new software will enable authors to help in XML JATS tagging once an article is accepted, in such a way that journals will leverage author crowdsourcing to have this task done, resulting in lowering costs at journal production workflow and in turn, it contributes to the sustainability of no-APC Open Access model.

- The development of author-based services will require a big effort in editors and journal internal teams training.
- Researchers would be introduced to the new features.

Status:

Two new version releases of the Marcalyc software (XML JATS and editorial workflow system) were launched in 2022. New functionalities and broader capacity for tagging were developed in order to enable Marcalyc to be used by authors. Besides, 303 persons from 207 universities were trained on the use of the technology.

Appendix G. Marcalyc-new functionalities-2022 and Appendix H. provide the detailed information.

Additional comments:

Two facts helped us understand the course of the project that wasn't clear when the application was initially submitted to SCOSS: 1) The response capacity from the international community of pledgers. 2) The time required for the campaign to raise funds to be able to proceed to the acquisition of the infrastructure.

The need to raise at least 50% of the funding goal to purchase modular components was identified by the providers and the technology unit of UAEM, so to acquire equipment that can start operations and provide service. Otherwise, smaller components could be purchased but with no possibility to use them, situation that will impact on the obsolescence of the equipment acquired in the first stages of the project.

It is important to highlight that 13% of the goal has been raised in the first year.