Memo 71cc

Implementation Support - Cloud Architect

Contents

Cloud Architecture Implementation Support (x3) - Cloud Architect 3

Introduction 3

Call for Proposals 4

Timeline 4

Audience 4

Instructions 4

Proposal evaluation 5

Total budget 5

Key responsibilities 6

Requirements 6

Deliverables List 7

Interested? 8

Evaluation Criteria 9

Cloud Architecture Implementation Support (x3) - Cloud Architect

Introduction

The DO will be a non-profit organization at the heart of industry, government and science collaboration.

The DO vision is to be at the vanguard of data-centric innovation, leading in the production of data-centric solutions, talent, and social capital. This vision translates to the mission of hosting datasets of global value acquired and generated in Chile and enabling their maximal exploitation by the global scientific community, the industry, and the public, facilitating data access, analysis, exploration, visualization, and governance to foster knowledge and its applications in economy.

The first dataset that the DO will use for its mission will be Astronomy.

Over the last century the technology of astronomical observatories improved dramatically, the understanding of the origin and destiny of our universe has evolved accordingly, but there is still more to discover. This progress in technology ignited a transformation in the way astronomy works: the knowledge that emerged from individual's minds now flows from multi-disciplinary teams using data-centric tools. On one hand, data blooms from observatories; on the other, data bursts from cosmological simulations on computing clusters. Telescopes will produce zetta-scale datasets over the next decade, and theoretical astrophysics will generate similar data volumes and challenges.

Chile is a capital of Astronomy. Since the 60s, the collaboration between the Chilean government and international observatories has brought 40% of Earth's telescopes to our territory. That share will grow to around 60% in 2021. The inauguration of instruments in the next decade will further enshrine the Atacama Desert as a capital of astronomy. The volume of astronomical data acquired in the Atacama desert will go from around 1 PB/year today, to 16.5 PB/year in 2021.

Chile is a protagonist of global astronomy. Astronomy is a field is at the vanguard of big data. Big data is the center of a broader revolution that is impacting digital economy in our country and elsewhere. Chile can increase its protagonism in this revolution, through Astronomy.

In consequence, we are calling you to contribute to a team of DOers that will have the responsibility of implementing the DO vision during 2019, and establish a robust and strong foundation for this innovative initiative aiming to solve global challenges, from Chile.

Call for Proposals

ACTI A.G. is the **management entity** hired by CORFO to manage the Astroinformatics Program. ACTI A.G. requires to hire services for the delivery of initial implementations of the architecture of the Data Observatory in the Cloud. This document establishes the procedure used by the **management entity** to select **future providers** and how the **future providers** work will be managed.

Timeline

- Call for proposals published: June 27nd, 2019
- Last day for proposal submissions: July 15th, 2019
- Evaluation period: July 15th to July 21st, 2019
- Contract award and start of the work (or before): July 22nd, 2019
- Deliverables deadline: October 30th, 2019

Audience

We welcome legal persons of all kinds to participate in this call, including but not limited to Chilean and foreign persons and companies, research institutions, and consortia.

Instructions

Interested in participating shall send their proposal to jcletelier@acti.cl including:

- Name of the call: “Cloud Architect”

- Name of your legal representative (can be yourself)
- Contact phone and email to be reached at office hours
- Minimal proposal contents
    - letter of intent
    - portfolio of previous projects
    - total cost of the work done in 3 months (gross costs)

The management entity will note the reception of proposals, date and time.

Proposal evaluation

The proposals will be evaluated following the process below:

1. reached the deadline, the program team will study each proposal and evaluate them according to section “Evaluation Criteria”
2. The program team will recommend the selection of one or more candidate proposals to the management entity.
3. The management entity will notify the awarded participant using the contact information in the proposal envelope.

Total budget

The total budget for this project consist of $CLP 9,500,000 to be executed during the period between August 1st to October 31st (3 months)

Key responsibilities

The successful candidate will play a critical role in the first step of the data observatory in:

- implementing the cloud infrastructure and initial deployment of the Chilean ALMA Regional Center
- evolving the current DO proofs-of-concept to full-scale DO challenges
- laying the groundwork for the DevOps DOers of the future, at the heart of industry-science relationship.

Requirements

We are searching for a great teammate, skilled and experienced in cloud architectures, with knowledge in data-centric frameworks and solutions in the realms of data science and/or data engineering.

We require from you:

- Commitment and responsibility to work with passion to achieve the objectives of the implementation.
- Capacity to work in a team, this is a multi-disciplinary effort that requires your abilities to trust others and earn the trust from others.
- Experience in designing and implementing solutions in cloud environments.
- Experience in working to enable data-centric solutions
- Experience Testing and Prototyping; this means the ability to fail often and learn fast from that.
- Value oriented: the ability to understand we are implementing systems for real people and a defined mission, and how to work without losing sight of that
- Capacity to listen and learn about others around you, the ability to empathize with diverse DO stakeholders is crucial for the success of the DO as a neutral broker at the heart of teams solving challenges that for different reasons, are important for private companies, science and government.
- Ability to make yourself understood in written and spoken English
- Desired:
    - Git experience, we will use it for the implementation
    - Experience with AWS cloud platform

- Diversity: our activity has a gender representation challenge; we encourage hiring from less represented groups.

Deliverables List

1. Review of Implementation plan for the Chilean ALMA Regional Center
    a. Review of V1.0 if implementation plan for the Chilean ALMA Regional Center (CL-ARC)
    b. Agreement with plan (or modifications)
2. Review of Methodology for implementing the CL-ARC
    a. Review of V1.0 of the methodology
    b. Agreement with methodology (or modifications)
3. 3-month Scope goals
    a. Step-by-step setup and configuration documentation of the AWS Virtual Private Cloud for the ALMA software, including a working VPC.
    b. Step-by-step setup and configuration documentation of the VPN to access the ALMA Santiago Central Office, including a working VPN client running on the VPC.
    c. Step-by-step setup and configuration documentation of the Oracle database, including a running Oracle Virtual Machine, Oracle VM Manager, and Oracle DB and Oracle Golden Gate running on the VPC.
    d. Step-by-step setup and configuration documentation of the Next Generation Archive System (NGAS), including running NGAS instances on the VPC, with attached S3 as Network Attached Storage.
    e. Report of the first replication tests with Oracle Golden Gate.
    f. Report of the first replication tests with NGAS.
    g. Step-by-step setup and configuration documentation of the Java Servlet Container (TOMCAT, Glassfish, or equivalent), including Docker containers running on the VPC.
    h. Development of a mock CAS (ALMA authentication service) based on the existing CAS against the Oracle DB for users. Code submitted to Github without authentication information.
    i. Step-by-step setup and configuration documentation the mock CAS on the Java Servlet Container, including its deployment on the Servlet container.
    j. Report on the Single-Sign-On tests using the mock CAS.

k. Step-by-step setup and configuration documentation of the Archive Query Interface (AQ), including deployment of AQ running running on the Servlet container in the VPC, and interfacing with the Oracle DB.
l. Step-by-step setup and configuration documentation of the Archive Query Interface (AQ), including deployment of AQ running on the Servlet container in the VPC, and interfacing with the Oracle DB.
m. Step-by-step setup and configuration documentation of the Request Handler (RH), including deployment of RH running on the Servlet container the VPC, and interfacing with the Oracle DB and NGAS.
n. Report on the AQ and RH tests using the mock CAS, the Oracle DB, and NGAS.
o. Step-by-step setup and configuration documentation of the User Portal, including deployment of the User Portal running on the Servlet container the VPC, and interfacing with the Oracle DB, AQ, and RH.
p. Report on the User Portal tests using the mock CAS, the Oracle DB, NGAS, RH, and AQ.
q. Step-by-step setup and configuration documentation of the Source Catalogue (sourcecat), including deployment of sourcecat running running on the Servlet container in the VPC, and interfacing with the Oracle DB and User Portal.
r. Report on the sourcecat tests using the mock CAS, the Oracle DB, NGAS, and User Portal.
s. Step-by-step setup and configuration documentation of the Sensitivity Calculator (SC), including deployment of SC running running on the Servlet container in the VPC, and interfacing with the Oracle DB and User Portal.
t. Report on the SC tests using the Oracle DB and User Portal.
u. Step-by-step setup and configuration documentation of the connectivity to the ALMA CAS Server, including report on the Connectivity tests to the ALMA CAS Server.
v. Detailed report on the integration tests between NGAS and the Request Handler.
w. Detailed report on the integration tests between NGAS, the Request Handler, and AQ.
x. Detailed report on the integration tests between NGAS, the Request Handler, AQ, User Portal, Source Catalogue, and Sensitivity Calculator.

Interested?

Write to us at observatoriodedatos@economia.cl

Evaluation Criteria

Technical

Technical aspects will weight 95% of the total. Methodology and deliverables understanding will amount to 40% of the technical weight (95%) according to table below:

EVALUACIÓN	NOTA	DESCRIPCIÓN
Malo	1	No understanding of the deliverables nor methodology proposed
Insuficiente	3	Poor understanding of both deliverables and methodology
Suficiente	5	Poor understanding of either deliverables or methodology
Bueno	7	Partial understanding of both deliverables and methodology
Muy Bueno	10	Good understanding of deliverables and methodology

Experience and Skills 60% of the technical weight (95%) according to table below:

EVALUACIÓN	NOTA	DESCRIPCIÓN
Malo	1	No relevant experience nor certified skills
Insuficiente	3	Insufficient experience or certified skills
Suficiente	5	Sufficient experience and certified skills
Bueno	7	Strong experience or certified skills
Muy Bueno	10	Strong experience and certified skills

Economical and formal

Price will weight 50% of the economical and formal weight (5%) according to formula below:

$$\frac{Propuesta\ x}{Propuesta\ de\ mayor\ valor\ económico} \cdot 100$$

Presentation will weight the remaining 50% of the economical and formal weight (5%) according to table below:

EVALUACIÓN	NOTA	DESCRIPCIÓN
Malo	1	More than 5 omission or mistakes
Insuficiente	3	5
Suficiente	5	4
Bueno	7	1-3
Muy Bueno	10	0