TIMES Cloud Service

Proposal for an IEA-ETSAP funded project submitted to the Winter 2022 ExCo meeting
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Frederik Fiand
ffiand@gams.com
TIMES Cloud Service

Follow up to currently active ETSAP Project: TIMES Cloud Service (04/2021 – 03/2023)

Users

Request access/support
(timeslcoud@etsap.org)

Provide access/support

Service Admin (GAMS)

Client access,
Resources requests (RAM, #cores, time)

Veda
Veda-
Online
TIMES
MIRO
GAMS
Studio
Browser

BROKER
REST API

Software

GAMS Worker
GAMS Worker
GAMS Worker
GAMS Worker

• Parallel workers on on-demand instances
• Broad set if instance types with different resources available (up to 2TB RAM)
• Quotas allow controlling the usage pattern

aws

maintain

maintain / lease
Using different instances

- Depending on input data and parameterization, TIMES models can differ dramatically in size and complexity → different TIMES models require different compute resources.
- Currently 20 instance types available
- Instances with up to 128 vCPUs and 2,048 GB RAM available
- Default instance (z1d.large) can be used for 4,000 hours
  - Quota consumed faster on larger instances according to multiplier
- Horizontal Scaling: Parallel Jobs
Usage pattern in current project

- Up to 17 parallel jobs
- Different instances are used
- 2,500 hours of compute time consumed since February 2022
- Vast majority of jobs from Veda-Online (or Veda)
- 24 registered users
  - Contains shared Veda-online account (~20+ users)
- Currently entire budget (made available in monthly chunks) accessible to everyone (first come first serve)
Quota and User Management

• Introduce a user hierarchy that ensures a fair distribution of compute resources among the ETSAP contracting parties.
  • Users should be associated to a contracting party
  • Quota split evenly among contracting parties (who want to use the service)
• 4,000 hours per year, made available in monthly chunks. Unused hours roll over to the next month
  • 90% for ETSAP contracting parties, 10% for outreach activities / prospective users
• Contracting parties can increase quota in chunks of 100 hours (5.57 EUR/h)
• Single point of contact: timescloud@etsap.org (should be redirected to GAMS)
Schedule and Costs

- **EUR 17,300: 4000h Compute time budget** (includes license and cloud computing costs)
- **EUR 5,000: Administration and Maintenance**
  - User mgmt.
  - Updating TIMES versions

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Partner</th>
<th>Line Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TIMES Cloud service (04/01/2023 – 03/31/2024)</td>
<td>GAMS</td>
<td>€22,300</td>
</tr>
</tbody>
</table>

Total funding requested from ETSAP: €22,300

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1 4,000 hours GAMS/CPLEX and GAMS/Conopt on z1d.large instance. **40% discount** compared to current pricing.
Thank You!

ffiand@gams.com
www.gams.com

@GamsSoftware
https://www.linkedin.com/company/gams-development