

Multi-User Endpoints



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What is a Multi-User Compute Endpoint?



- Aside ... hereafter:
 - MEP → Multi-User Endpoint
 - UEP → User Endpoint ("normal endpoint")
- In contrast to a "normal" compute endpoint, an MEP does not run tasks.
- Instead, an MEP
 - starts UEPs
 - (Slightly more precisely, fork, drop privileges, exec)
 - Manages their lifecycle (okay, os.fork() and os.waitpid())
- Receives start UEP commands from the web-service



htop screen recording



PID/USER	RES S	CPU%	Command	
1923814 root	126M S	0.0		Globus Compute Endpoint *(290ffb16-c7f2-4799-a314-f4fd67787edd, test_mt) -
1924147 kevin	142M S	0.7		Globus Compute Endpoint (fbcbb7eb-0251-1f36-e706-54273e576aa3, uep.290f
1924217 kevin	124M S	0.7		— Globus Compute Endpoint (fbcbb7eb-0251-1f36-e706-54273e576aa3, uep.2
1924233 kevin	123M S	0.0		Globus Compute Endpoint (fbcbb7eb-0251-1f36-e706-54273e576aa3, uep.2
1924243 kyle	142M S	0.0		— Globus Compute Endpoint (3d872cb2-6da9-11ee-94fd-5779496bdfed, uep.290f
1924266 kyle	124M S	1.3		Globus Compute Endpoint (3d872cb2-6da9-11ee-94fd-5779496bdfed, uep.2
1924282 kyle	123M S	0.0		Globus Compute Endpoint (3d872cb2-6da9-11ee-94fd-5779496bdfed, uep.2
1924303 harper	142M S	0.0		Globus Compute Endpoint (405864d8-6da9-11ee-b71e-8b2ed7f32de6, uep.290f
1924368 harper	125M S	0.7		├─ Globus Compute Endpoint (405864d8-6da9-11ee-b71e-8b2ed7f32de6, uep.2
1924384 harper	123M S	0.0		Globus Compute Endpoint (405864d8-6da9-11ee-b71e-8b2ed7f32de6, uep.2
1924399 jessica	142M S	0.0		Globus Compute Endpoint (40d3bdc2-6da9-11ee-a600-effb50f3bbdb, uep.290f
1924419 jessica	124M S	2.0		Globus Compute Endpoint (40d3bdc2-6da9-11ee-a600-effb50f3bbdb, uep.29
1924435 jessica	123M S	0.0		Globus Compute Endpoint (40d3bdc2-6da9-11ee-a600-effb50f3bbdb, uep.2
1924445 rowan	142M S	0.0		☐ Globus Compute Endpoint (41357daa-6da9-11ee-9130-a70f3801bb30, uep.290f
1924472 rowan	124M S	1.3		☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
1924488 rowan	123M S	0.0		☐ Globus Compute Endpoint (41357daa-6da9-11ee-9130-a70f3801bb30, uep.29



Admin Writes 60 not book and the doing it? User Script



```
type: GlobusComputeEngine
provider:
 type: SlurmProvider
 partition: cpu
 account: {{ ACCOUNT ID }}
   type: SrunLauncher
 walltime: {{ walltime|default("00:30:00") }}
    user config template.yaml
```

```
import globus compute sdk as GC
uep conf = {
   "ACCOUNT ID": "314159265",
   "walltime": "00:02:00"
with GC. Executor (
  user endpoint config=uep conf
 as qce:
    fut = gce.submit(some func)
    res = fut.result()
```



Admin Writes/Controls

User Script



```
type: GlobusComputeEngine
provider:
 type: SlurmProvider
 partition: cpu
 account: {{ ACCOUNT ID }}
   type: SrunLauncher
 walltime: {{ walltime|default("00:30:00") }}
    user config template.yaml
```

```
import globus compute sdk as GC
uep conf = {
   "ACCOUNT ID": "543126688"
with GC. Executor (
  user endpoint config=uep conf
 as qce:
    fut = gce.submit(some func)
    res = fut.result()
```



Two different configurations; same user!



```
Globus Compute Endpoint *(290ffb16-c7f2-4799-a314-f4fd67787edd, test mt) - l
2725570 root
                                                          Globus Compute Endpoint (8574f3e9-01c4-5628-a6c2-b2b169d3731f, uep.290ffb
2800689 kevin
                   145M S 1.9
                                                             parsl: HTEX interchange
2800700 kevin
                                                             Globus Compute Endpoint (8574f3e9-01c4-5628-a6c2-b2b169d3731f, uep.290
2800716 kevin
                          0.0
                                                           Globus Compute Endpoint (3dc6c69f-0221-7291-98a2-b67fcc23d411, uep.290ffb
2801135 kevin
                   145M S
                          0.0

    parsl: HTEX interchange

2801155 kevin
                   125M S
                                                             Globus Compute Endpoint (3dc6c69f-0221-7291-98a2-b67fcc23d411, uep.290
2801171 kevin
                   124M S
                          0.0
```



Value-Add for Users



No need to maintain multiple endpoints for different configurations

Specify needs <u>at task submission</u>

No need to log in to the terminal





Value-Add for Site Administrators



- Templatable User Endpoint Configurations (Jinja)
 - o e.g., pre-choose SlurmProvider, PBSProvider; enforce limits
- No orphaned user compute endpoints
 - Enforced process tree
 - Idle-endpoints are shutdown (per template configuration)
- Standard Globus Identity Mapping
- Lower barrier for users



Current status



We're buttoning up a few details

Have not yet written any documentation

Looking for brave volunteers to give it go



Thank You!



- Questions?
- Comments?
- Synergistic thoughts?

