

The dCache Master Class

Stuff you probably didn't know

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- core services
 - *cleaner, gplazma, loginbroker, pinmanager, pnfsmanager, poolmanager, pool*
- doors
 - *authdcap, dcap, ftp, gridftp, gsidcap, kerberosdcap, kerberosftp, nfsv3, nfsv41, srm, webdav, xrootd, dir*
- srm
 - *spacemanager, srm-loginbroker, transfermanagers*
- cells
 - *broadcast, cns*
- admin
 - *admin, billing, httpd, info, statistics, topo, webadmin*
- other
 - *gsi-pam, hopping, replica*
- obsolete
 - *acl, dummy-prestager*

[myDomain]

propertyA=foo

[myDomain/poolmanager]

[myDomain/pnfsmanager]

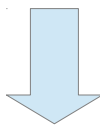
[otherDomain]

propertyA=bar

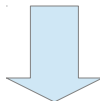
[otherDomain/gridftp]

propertyB=bla

```
/usr/share/dcache/defaults  
/usr/share/dcache/plugins/*/*.properties  
/etc/dcache/dcache.conf  
/etc/dcache/layout/layout.conf
```

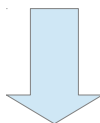


Configuration compiler

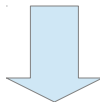


Shell

```
/usr/share/dcache/defaults  
/usr/share/dcache/plugins/*/*.properties  
/etc/dcache/dcache.conf  
/etc/dcache/layout/layout.conf
```



Configuration compiler



Shell

```
domains=$(getProperty dcache.domains)  
for domain in $domains; do  
    domainStart $domain  
done
```

```
behrmann@dcache-vm:~$ eval "$(dcache loader compile -shell)"
```

```
behrmann@dcache-vm:~$ getProperty dcache.domains
```

```
dCacheDomain adminDomain namespaceDomain pool gridftp-Domain  
testDomain
```

```
behrmann@dcache-vm:~$ getProperty domain.cells dCacheDomain
```

```
PoolManager LoginBroker SrmSpaceManager cleaner acladmin  
gPlazma PinManager billing httpd info DCap-gsi-dcache-vm SRM-  
dcache-vm Xrootd-dcache-vm WebDAV-dcache-vm
```

```
behrmann@dcache-vm:~$ getProperty domain.service dCacheDomain  
DCap-gsi-dcache-vm
```

```
gsidcap
```

```
behrmann@dcache-vm:~$ getProperty domain.service.uri  
dCacheDomain DCap-gsi-dcache-vm
```

```
gsidcap.batch
```

```
behrmann@dcache-vm:~$ getProperty domain.service.uri.base  
dCacheDomain DCap-gsi-dcache-vm
```

```
file:/usr/share/dcache/services/
```

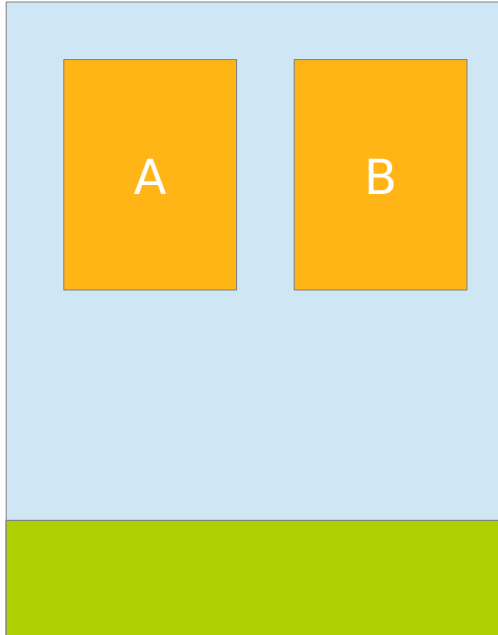
From loginbroker.batch:

```
onerror shutdown
```

```
create dmg.cells.services.login.LoginBroker \  
  ${cell.name} "default -export"
```

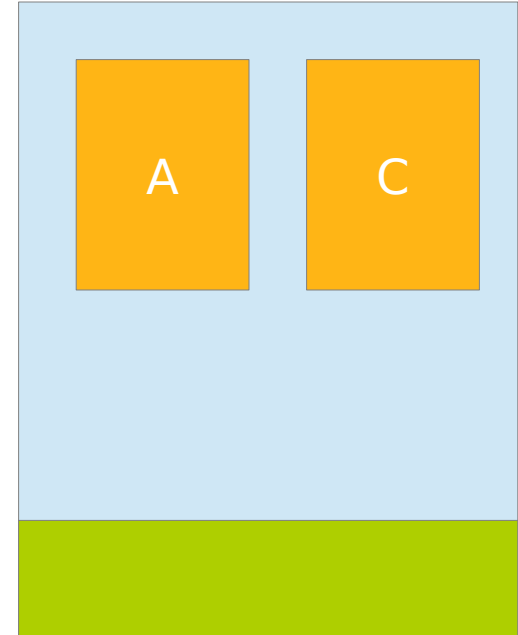
- Same commands you use through admin shell
- All configuration properties available as `${variables}`
- Property validation
- Typically start one or more cells

domainA



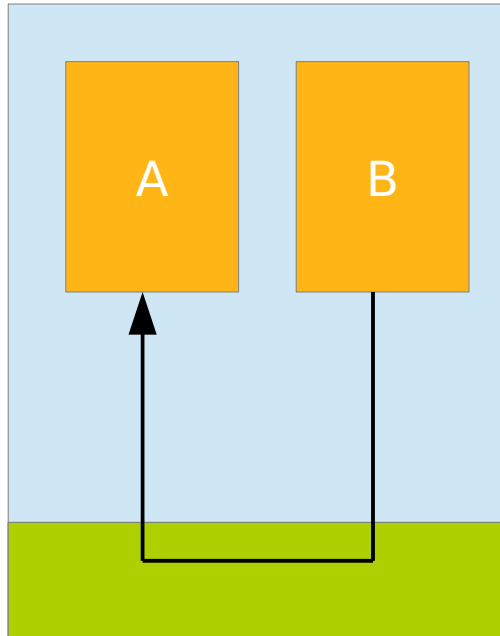
A@domainA
B@domainA

domainB

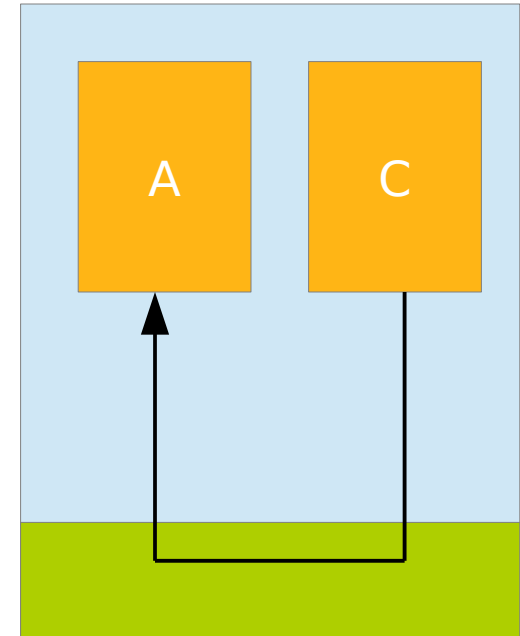


A@domainB
C@domainB

domainA

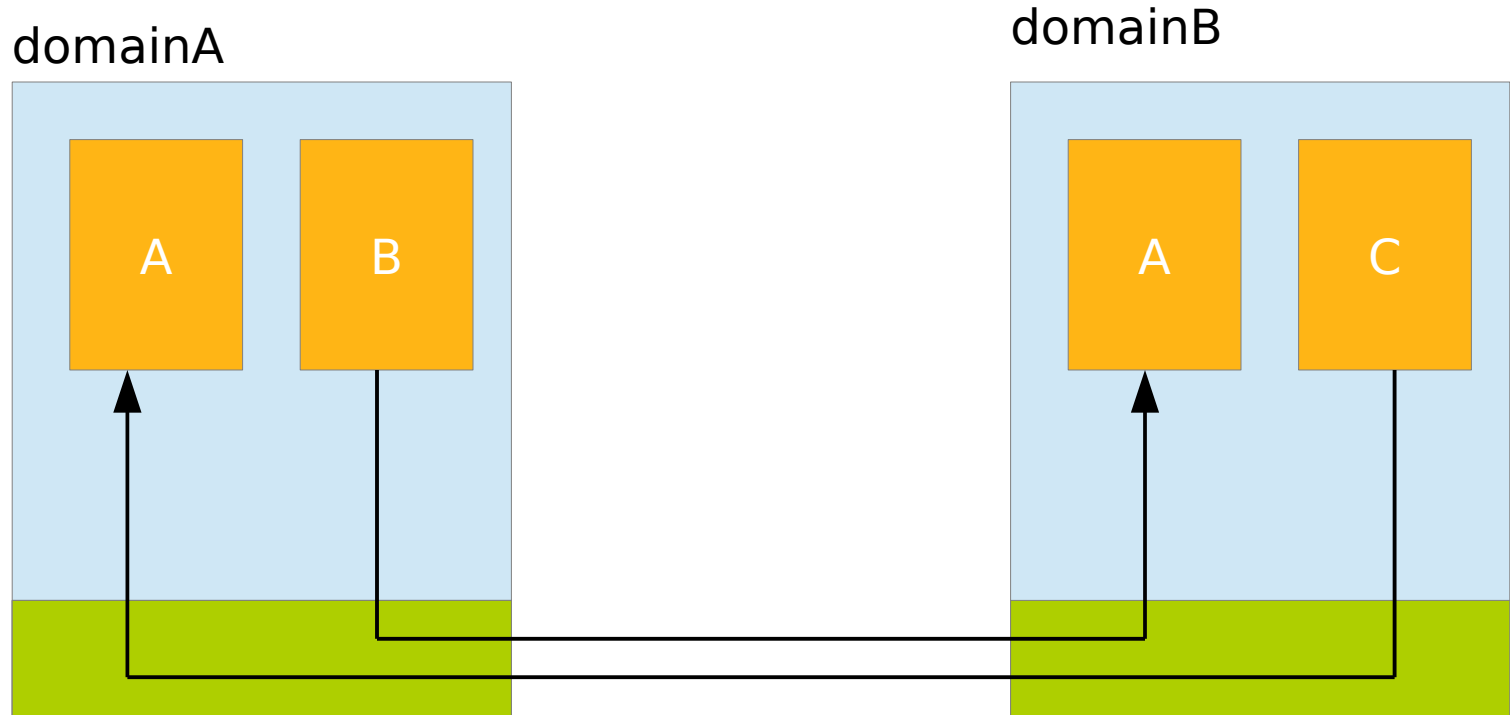


domainB



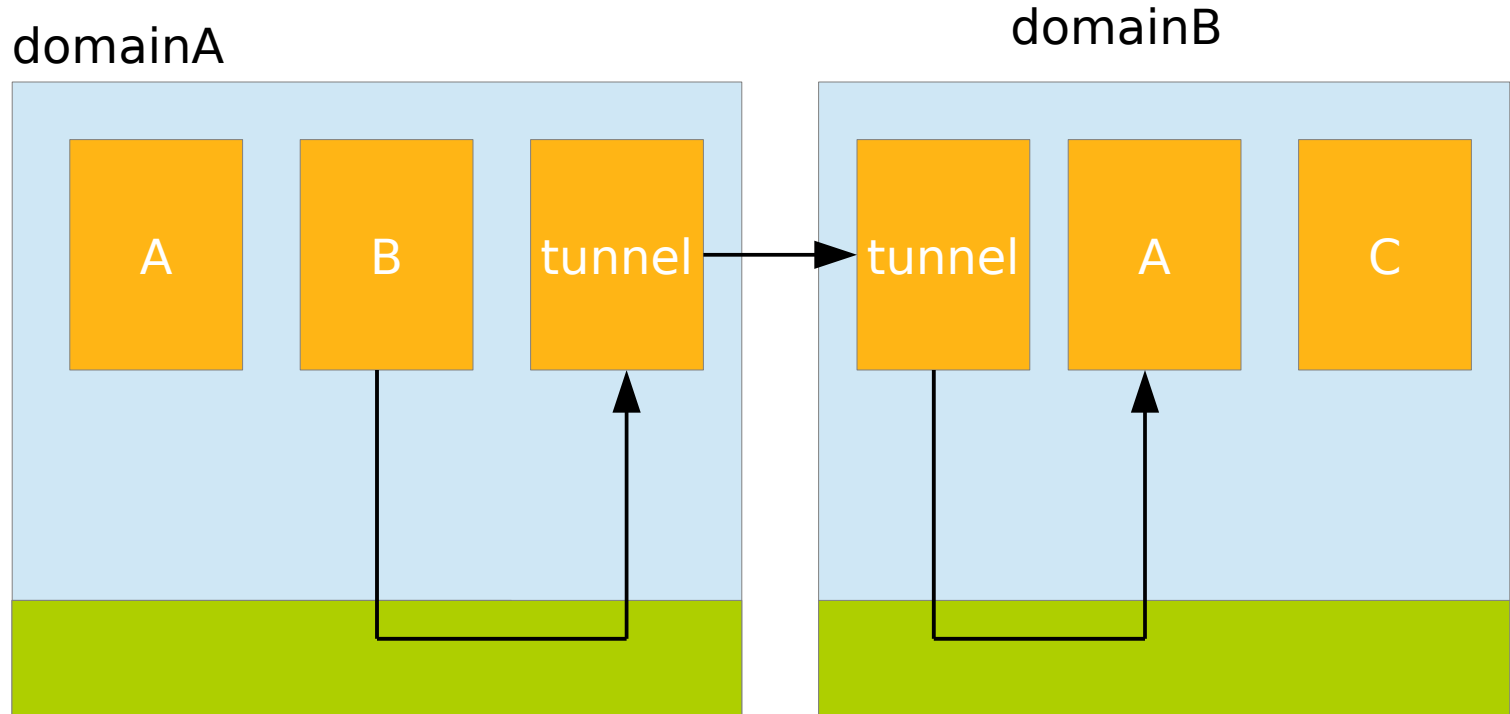
B: sendMessage("A", "do something")

C: sendMessage("A", "do something else")



B: sendMessage("A@domainB", "do something")

C: sendMessage("A@domainA", "do something else")



B: sendMessage("A@domainB", "do something")

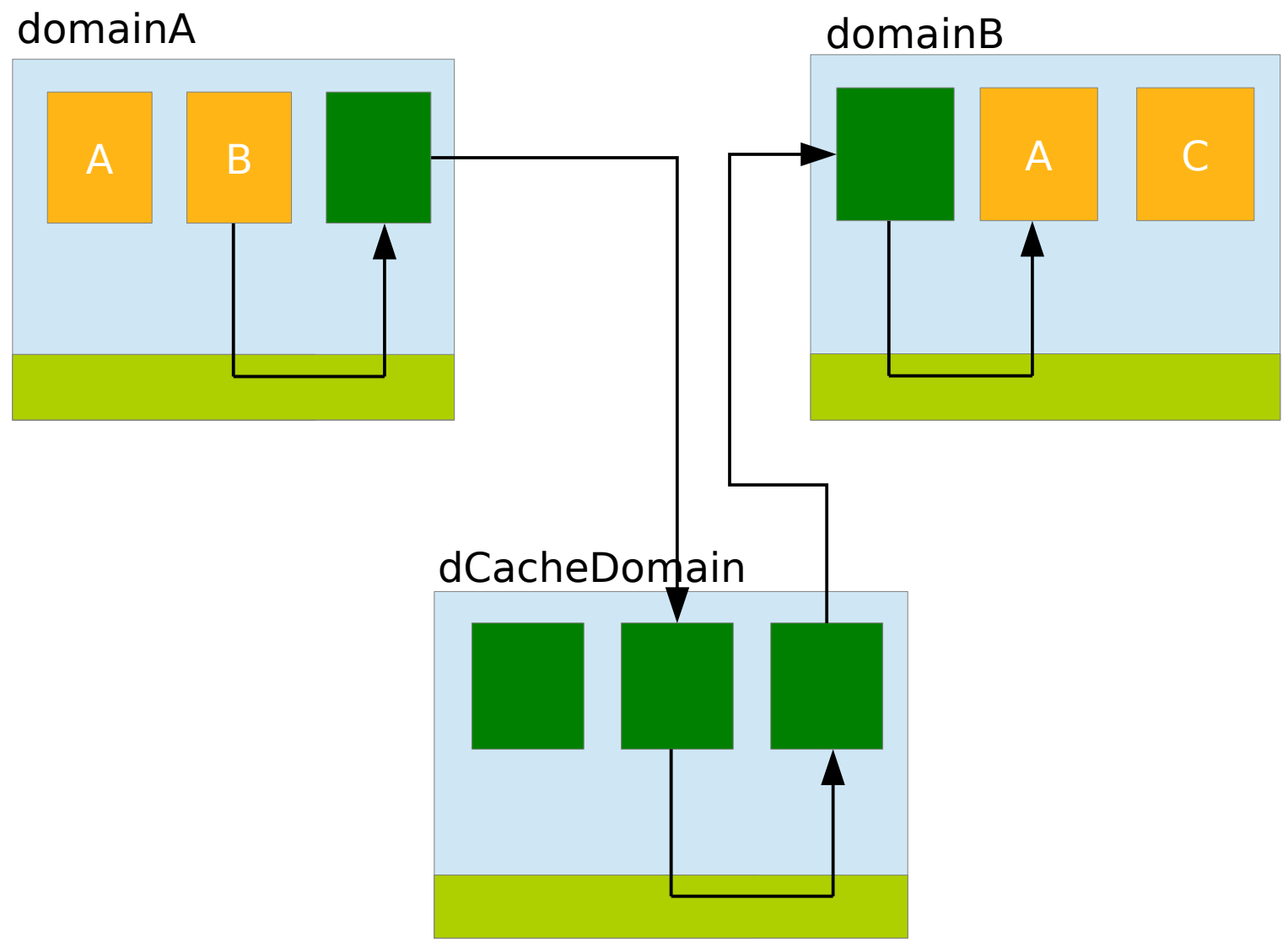
From /usr/share/dcache/cells/preload.fragment:

```
exec file:${dcache.paths.share}/cells/tunnel-${  
broker.scheme}.fragment
```

From /usr/share/dcache/cells/tunnel-cells.fragment:

```
eval ${domain.name} ${broker.domain} ==  
exec file:${dcache.paths.share}/cells/lmd.fragment -ifok
```

```
create dmg.cells.services.RoutingManager RoutingMgr  
create dmg.cells.services.LocationManager lm \  
    "${broker.host} ${broker.port} -clientPort=${  
broker.client.port}"
```

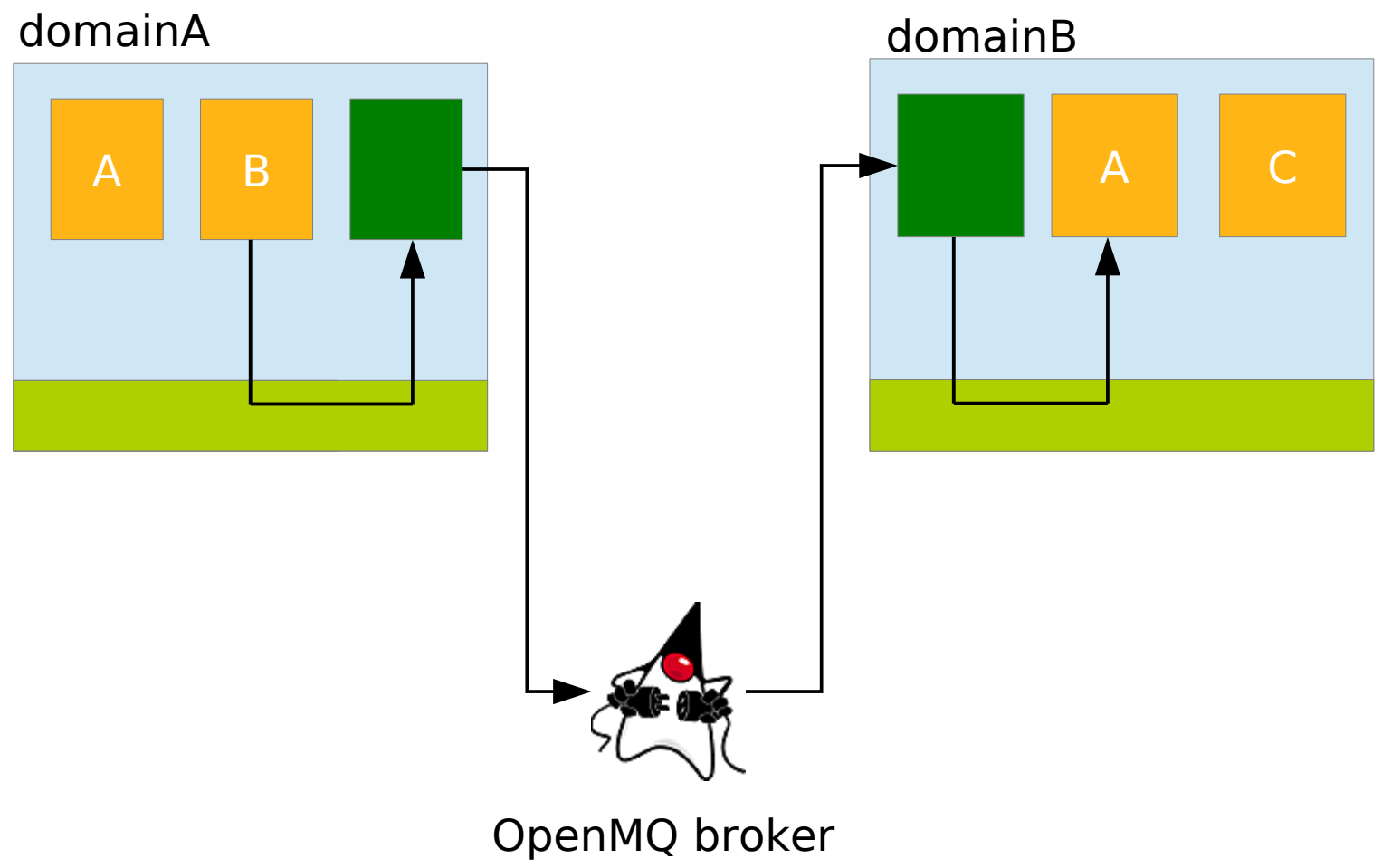


From /usr/share/dcache/cells/preload.fragment:

```
exec file:${dcache.paths.share}/cells/tunnel-${  
broker.scheme}.fragment
```

From /usr/share/dcache/cells/tunnel-openmq.fragment:

```
create org.dcache.cells.UniversalSpringCell JMS \  
    "-cellType=System -cellClass=JMS  
classpath:org/dcache/cells/openmq.xml \  
    -broker.openmq.host=${broker.openmq.host} \  
    -broker.openmq.port=${broker.openmq.port} \  
    -broker.openmq.reconnect.interval=$  
{broker.openmq.reconnect.interval} \  
    "
```



Change in logback.xml

```
<threshold>  
  <appender>events</appender>  
  <logger>events</logger>  
  <level>debug</level>  
</threshold>
```

and look at /tmp/events-*.out

```
behrmann@dcache-vm:/tmp$ ls events-*.out -l
```

```
-rw-r--r-- 1 dcache dcache      0 2012-04-13 16:17 events-adminDomain.out
-rw-r--r-- 1 dcache dcache 170078 2012-04-13 16:25 events-dCacheDomain.out
-rw-r--r-- 1 dcache dcache 15511 2012-04-13 16:24 events-gridftp-Domain.out
-rw-r--r-- 1 root  root    4138 2012-04-13 16:25 events-namespaceDomain.out
-rw-r--r-- 1 behrmann behrmann 8792 2012-04-13 16:25 events-pool.out
```

```
behrmann@dcache-vm:/tmp$ sed -n -e 's/.*message=(.*) source.*\1/p'  
events-dCacheDomain.out |sort|uniq -c
```

```
 4 BroadcastRegisterMessage  
 2 "listening on 1-101 11111"  
144 LoginBrokerInfo  
 36 PoolManagerGetPoolMonitor  
119 PoolManagerPoolUpMessage  
 3 PoolMgrGetPoolLinkGroups  
24 PoolStatusChangedMessage  
 1 "-serial=1 -- listenOn dCacheDomain dcache-vm:11111"  
 9 String[]
```

```
ts=2012-04-13T16:23:50.529
event=org.dcache.cells.deliver.begin
uoid=<1334327030432:182>
lastuoid=<1334327029681:181>
session=
message>LoginBrokerInfo
source=[>Xrootd-dcache-vm@dCacheDomain]
destination=[>LoginBroker@local]
```

```
ts=2012-04-13T16:23:04.617
event=org.dcache.cells.send.begin
uoid=<1334326984617:115>
lastuoid=<1334326984599:114>
session=
mode=async
message=BroadcastRegisterMessage
source=[>cleaner@dCacheDomain]
destination=[>broadcast@local]
```

```
events-pool.out:16:23:06.510          event=send
source=[>pool_0@pool]
destination=[>broadcast@local]

events-dCacheDomain.out:16:23:06.636  event=deliver
source=[>pool_0@pool:*@pool]
destination=[>broadcast@local]

events-dCacheDomain.out:16:23:06.636  event=send
source=[INVALID]
destination=[broadcast@local:>cleaner@dCacheDomain]

events-dCacheDomain.out:16:23:06.638  event=deliver
source=[>pool_0@pool:*@pool:broadcast@dCacheDomain]
destination=[broadcast@local:>cleaner@dCacheDomain]

events-dCacheDomain.out:16:23:06.640  event=send
source=[INVALID]
destination=[broadcast@local:>PoolManager@local]

events-dCacheDomain.out:16:23:06.641  event=deliver
source=[>pool_0@pool:*@pool:broadcast@dCacheDomain]
destination=[broadcast@local:>PoolManager@local]
```

```
behrmann@dcache-vm:/tmp$ grep send.begin *.out | grep door:WebDAV-dcache-
vm@dCacheDomain:1334335231646 | sed -n -e 's/.*ts=2012-04-13T\([^ ]*\).*message=\
(.*) source=\([^ ]*\) destination=\([^ ]*\).*\/\1+\2+\3+\4/p' | sed -e
's/@[\^]:]*//g' |sort|column -t -s+
```

18:40:31.660	LoginMessage	[>WebDAV-dcache-vm]	[>gPlazma]
18:40:40.059	LoginMessage	[>gPlazma]	[>WebDAV-dcache-vm]
18:40:40.236	PnfsGetFileAttributes	[>WebDAV-dcache-vm]	[>PnfsManager]
18:40:42.153	PnfsGetFileAttributes	[>PnfsManager]	[>*:WebDAV-dcache-vm]
18:40:42.404	PnfsGetFileAttributes	[>WebDAV-dcache-vm]	[>PnfsManager]
18:40:43.120	PnfsGetFileAttributes	[>PnfsManager]	[>*:WebDAV-dcache-vm]
18:40:43.362	PnfsListDirectoryMessage	[>WebDAV-dcache-vm]	[>PnfsManager]
18:40:44.897	PnfsListDirectoryMessage	[>PnfsManager]	[>*:WebDAV-dcache-vm]

```
behrmann@dcache-vm:/tmp$ grep send.begin *.out | grep door:WebDAV-dcache-
vm@dCacheDomain:1334335253346 | sed -n -e 's/.*ts=2012-04-13T\([^ ]*\).*message=\(.*\)
source=\([^ ]*\) destination=\([^ ]*\).*\/\1+\2+\3+\4/p' | sed -e 's/@[^:]*//g' |sort|
column -t -s+
```

```
18:40:53.346 LoginMessage                [>WebDAV-dcache-vm]    [>gPlazma]
18:40:53.442 LoginMessage                [>gPlazma]             [>WebDAV-dcache-vm]
18:40:53.453 PnfsGetFileAttributes             [>WebDAV-dcache-vm]    [>PnfsManager]
18:40:55.504 PnfsGetFileAttributes             [>PnfsManager]         [>*:WebDAV-dcache-vm]
18:40:55.606 PnfsGetFileAttributes             [>WebDAV-dcache-vm]    [>PnfsManager]
18:40:57.490 PnfsGetFileAttributes             [>PnfsManager]         [>*:WebDAV-dcache-vm]
18:40:57.505 PoolMgrSelectReadPoolMsg          [>WebDAV-dcache-vm]    [>SrmSpaceManager]
18:40:58.154 PoolMgrSelectReadPoolMsg          [>WebDAV-dcache-vm]
                                     [SrmSpaceManager:>PoolManager]
18:40:59.764 Pool2PoolTransferMsg              [>PoolManager]         [>pool_1]
18:41:03.390 PoolDeliverFileMessage            [>pool_1]               [>pool_2]
18:41:03.846 PoolDeliverFileMessage            [>pool_2]               [>pool_1]
18:41:04.876 HttpDoorUrlInfoMessage           [>pool_2]               [>pool_1]
18:41:07.584 MoverInfoMessage                  [>pool_2]               [>billing]
18:41:07.590 PnfsGetFileAttributes             [>pool_1]               [>PnfsManager]
18:41:08.049 DoorTransferFinishedMessage       [>pool_2]               [>pool_1]
18:41:08.419 PnfsGetFileAttributes             [>PnfsManager]         [>*:*:pool_1]
18:41:10.256 PnfsSetFileAttributes             [>pool_1]               [>PnfsManager]
18:41:10.493 PnfsAddCacheLocationMessage       [>PnfsManager]         [>broadcast]
18:41:10.681 PnfsSetFileAttributes             [>PnfsManager]         [>*:*:pool_1]
18:41:11.282 Pool2PoolTransferMsg              [>pool_1]               [>*:PoolManager]
```




```
behrmann@dcache-vm:/tmp$ sed -n -e 's/.*message=\(.*\)
source.*\/\1/p' events-dCacheDomain.out |sort|uniq -c

    4 BroadcastRegisterMessage
    2 "listening on 1-101 11111"
  144 LoginBrokerInfo
    36 PoolManagerGetPoolMonitor
  119 PoolManagerPoolUpMessage
     3 PoolMgrGetPoolLinkGroups
    24 PoolStatusChangedMessage
     1 "-serial=1 -- listenOn dCacheDomain dcache-vm:11111"
     9 String[ ]
```

```
behrmann@dcache-vm:/tmp$ sed -n -e 's/*.message=(.*)\nsource.*\\/1/p' *.out |sort|uniq -c
```

```
2 DoorRequestInfoMessage\n8 DoorTransferFinishedMessage\n4 HttpDoorUrlInfoMessage\n15 LoginMessage\n4 MoverInfoMessage\n2 PnfsAddCacheLocationMessage\n24 PnfsGetFileAttributes\n4 PnfsListDirectoryMessage\n3 PnfsSetFileAttributes\n4 Pool2PoolTransferMsg\n14 PoolDeliverFileMessage\n3 PoolMgrGetPoolLinkGroups\n7 PoolMgrSelectReadPoolMsg\n....
```

```

18:41:11.434 PoolMgrSelectReadPoolMsg      [>PoolManager ]
                                           [>SrmSpaceManager:WebDAV-dcache-vm]
18:41:12.460 PoolMgrSelectReadPoolMsg      [>PoolManager ]
                                           [SrmSpaceManager:>WebDAV-dcache-vm]
18:41:12.642 PoolDeliverFileMessage         [>WebDAV-dcache-vm]
                                           [>SrmSpaceManager:pool_1]
18:41:12.792 PoolDeliverFileMessage         [>WebDAV-dcache-vm]
                                           [SrmSpaceManager:>PoolManager:pool_1]
18:41:12.883 PoolDeliverFileMessage         [>WebDAV-dcache-vm:SrmSpaceManager]
                                           [SrmSpaceManager:PoolManager:>pool_1]
18:41:12.965 PoolDeliverFileMessage         [>pool_1]
                                           [>*:PoolManager:SrmSpaceManager:WebDAV-dcache-vm]
18:41:12.968 HttpDoorUrlInfoMessage        [>pool_1]
                                           [>WebDAV-dcache-vm]
18:41:13.134 PoolDeliverFileMessage         [>pool_1:*]
                                           [*:PoolManager:>SrmSpaceManager:WebDAV-dcache-vm]
18:41:13.600 PoolDeliverFileMessage         [>pool_1*:PoolManager]
                                           [*:PoolManager:SrmSpaceManager:>WebDAV-dcache-vm]
18:41:19.291 MoverInfoMessage             [>pool_1]
                                           [>billing]
18:41:19.292 DoorTransferFinishedMessage  [>pool_1]
                                           [>*:PoolManager:SrmSpaceManager:WebDAV-dcache-vm]
18:41:20.672 DoorTransferFinishedMessage  [>pool_1:*]
                                           [*:PoolManager:>SrmSpaceManager:WebDAV-dcache-vm]
18:41:20.837 DoorTransferFinishedMessage  [>pool_1*:PoolManager]
                                           [*:PoolManager:SrmSpaceManager:>WebDAV-dcache-vm]
18:41:20.848 DoorRequestInfoMessage        [>WebDAV-dcache-vm]
                                           [>billing]

```



Questions?