SAGA PRACTICAL

ISSGC 2009

http://issgc-server-01.polytech.unice.fr/saga/

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SAGA

Simple API for Grid Application - ISSGC'09 Practical

INFRASTRUCTURE

user@issgc-client-01   ssh://   user@issgc-client-02   ssh://   user@issgc-client-20

ssh://   advert://

issgcXX@issgc-ui

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LOGIN
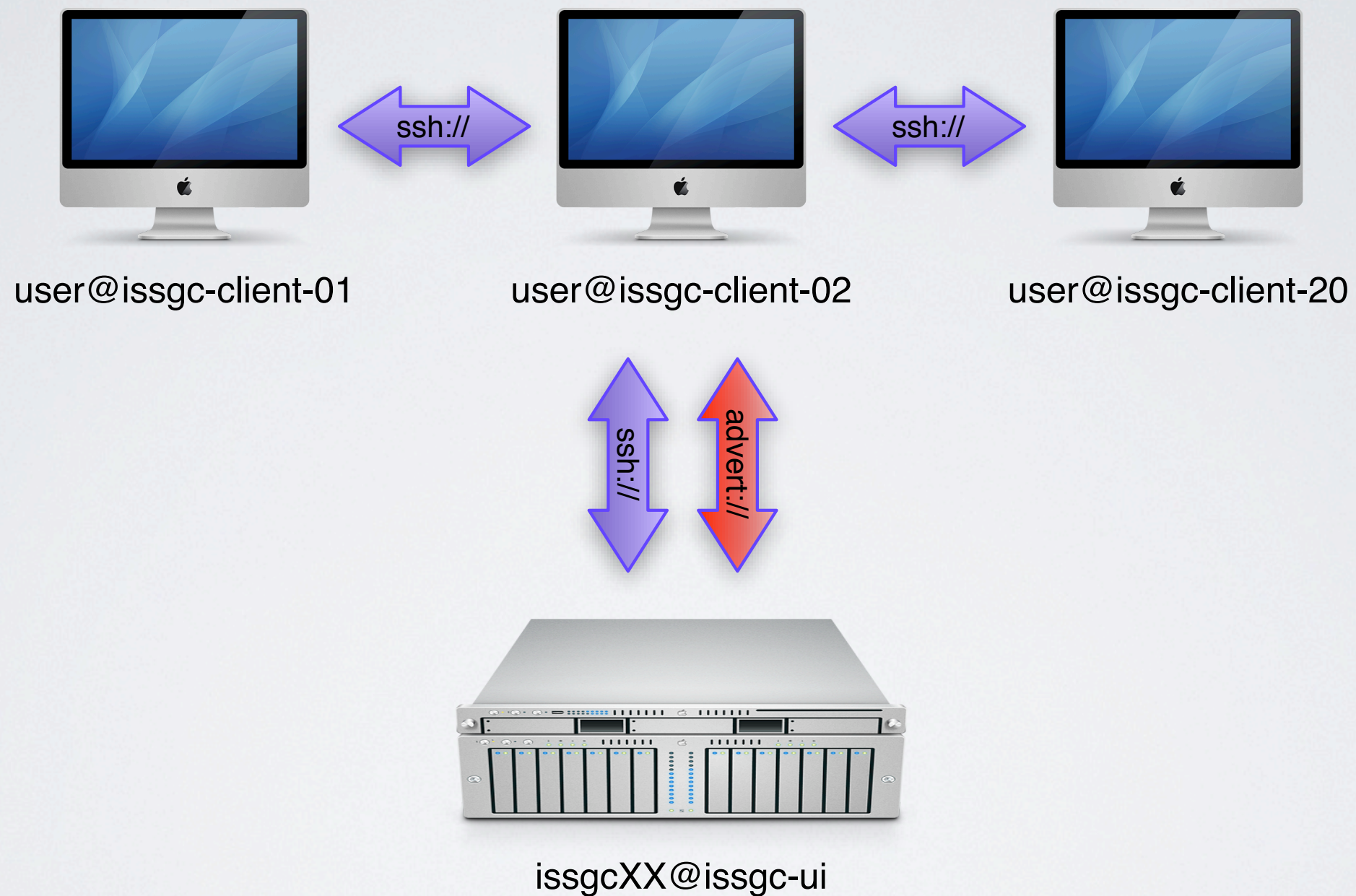
issgc01	>	134.59.140.152	/home/user/issgc01/		
issgc02	>	134.59.140.152	/home/user/issgc02/		
issgc03	>	134.59.140.152	/home/user/issgc03/		
issgc04	>	134.59.140.153	/home/user/issgc04/		
issgc05	>	134.59.140.153	/home/user/issgc05/		
issgc06	>	134.59.140.153	/home/user/issgc06/		
issgc07	>	134.59.140.156	/home/user/issgc07/		
issgc08	>	134.59.140.156	/home/user/issgc08/		
issgc09	>	134.59.140.156	/home/user/issgc09/		
issgc10	>	134.59.140.157	/home/user/issgc10/		
issgc11	>	134.59.140.157	/home/user/issgc11/		
issgc12	>	134.59.140.157	/home/user/issgc12/		
issgc13	>	134.59.140.158	/home/user/issgc13/		
issgc14	>	134.59.140.158	/home/user/issgc14/		
issgc15	>	134.59.140.158	/home/user/issgc15/		
issgc16	>	134.59.140.159	/home/user/issgc16/		
issgc17	>	134.59.140.159	/home/user/issgc17/		
issgc18	>	134.59.140.159	/home/user/issgc18/		
issgc19	>	134.59.140.160	/home/user/issgc19/		
issgc20	>	134.59.140.160	/home/user/issgc20/		

issgc21	>	134.59.140.160	/home/user/issgc21/
issgc22	>	134.59.140.161	/home/user/issgc22/
issgc23	>	134.59.140.161	/home/user/issgc23/
issgc24	>	134.59.140.161	/home/user/issgc24/
issgc25	>	134.59.140.162	/home/user/issgc25/
issgc26	>	134.59.140.162	/home/user/issgc26/
issgc27	>	134.59.140.162	/home/user/issgc27/
issgc28	>	134.59.140.163	/home/user/issgc28/
issgc29	>	134.59.140.163	/home/user/issgc29/
issgc30	>	134.59.140.163	/home/user/issgc30/
issgc31	>	134.59.140.164	/home/user/issgc31/
issgc32	>	134.59.140.164	/home/user/issgc32/
issgc33	>	134.59.140.164	/home/user/issgc33/
issgc34	>	134.59.140.165	/home/user/issgc34/
issgc35	>	134.59.140.165	/home/user/issgc35/
issgc36	>	134.59.140.165	/home/user/issgc36/
issgc37	>	134.59.140.166	/home/user/issgc37/
issgc38	>	134.59.140.166	/home/user/issgc38/
issgc39	>	134.59.140.166	/home/user/issgc39/
issgc40	>	134.59.140.167	/home/user/issgc40/

```
source   /opt/saga-1.3.1-issgc/share/saga/saga-env.sh
```

Make sure everything works:

```
saga-job run ssh://user@issgc-client-XX /bin/hostname
    saga-job run ssh://issgcXX@issgc-ui /bin/hostname

saga-advert list_directory advert://issgc-ui//issgcXX/ ?
```

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- SAGA comes with simple command line tools that allow to access basic package functionality.

- The source code is very simple and a great starting point to explore the SAGA package APIs:

  - saga-advert http://issgc-server-01.polytech.unice.fr/saga/cltools/advert/

  - saga-file http://issgc-server-01.polytech.unice.fr/saga/cltools/file/

  - saga-job http://issgc-server-01.polytech.unice.fr/saga/cltools/job/

  - saga-replica http://issgc-server-01.polytech.unice.fr/saga/cltools/replica/

- API documentation

  - http://issgc-server-01.polytech.unice.fr/saga/apidoc/

- Programming manual

  - http://issgc-server-01.polytech.unice.fr/saga/manual.pdf

- Simple file copy example: copy.cpp

```cpp
int main(int argc, char * argv[])
{
  saga::url source("ssh://issgc12@issgc-ui//etc/passwd");
  saga::url target(".");
  saga::filesystem::file file (source, saga::filesystem::Read);
  file.copy(target);

  return 0;
}
```

- Simple file copy example: Makefile

```
SAGA_SRC = $(wildcard *.cpp)
SAGA_ADD_BIN_OBJ = $(SAGA_SRC:%.cpp=%.o)
SAGA_BIN = copy

include $(SAGA_LOCATION)/share/saga/make/saga.application.mk
```

- Or do it the hard way:

```
g++ -Wall -I/opt/saga-1.3.1-issgc/include -pthread \
-L/opt/saga-1.3.1-issgc/lib \
-lsaga_engine -lsaga_package_file example.cpp
```

- Make sure that the SAGA libraries can be found by the loader. saga-env.sh takes care about that.

- If something goes wrong - use SAGA_VERBOSE:

```
SAGA_VERBOSE=10 ./example
```

- The source code can be found here:

  - http://issgc-server-01.polytech.unice.fr/saga/examples/hello_world.cpp

- Change these lines:

```
#define HOST1 "ssh://issgc<ID>@issgc-ui.polytech.unice.fr"
#define HOST2 "ssh://issgc<ID>@issgc-ui.polytech.unice.fr"
#define HOST3 "ssh://issgc<ID>@issgc-ui.polytech.unice.fr"
```

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- The source code can be found here:

  - http://issgc-server-01.polytech.unice.fr/saga/examples/depending_jobs.cpp

- Change this line:

```
#define RESULT_STORE  "advert://issgc-ui//issgcXX/dep_job_result"
```

- Make sure the advert entry is empty

```
saga-advert remove_entry advert://issgc-ui//issgcXX/dep_job_result
```

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- Copy executable

```
scp depending-jobs issgc-client-XX:/tmp/saga/
```

- Run the example:

```
./depending-jobs ssh://user@issgc-client-XX ssh://issgcXX@issgc-client-XX
```

- Retrieve result from the advert service

```
saga-advert retreive_entry advert://issgc-ui//issgcXX/dep_job_result
```

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- We saw simple examples from three different API packages:

    - advert package

    - job package

    - file package

- All the example code was rather simple, but of course it can be used to develop applications of arbitrary complexity

- More packages available:

    - replica, service discovery, cpr, streams

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THANKS

Questions?

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