Case Studies of Existing Rolls

Building condor roll

Rocks-A-Palooza I

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What is Condor ?

- developed at University of Wisconsin

  see http://www.cs.wisc.edu/condor
- specialized workload management system that creates a High-Throughput Computing (HTC) environment
- When used ?
  - parameter studies
  - embarrassingly parallel
  - high-throughput computing where subjobs do not need to communicate
  - long computation

Condor Pool on Rocks

- one condor pool per rocks cluster
- frontend
  - central manager
  - submit
- compute node
  - submit
  - execute

Prepare for the build

- **Check out CVS Rocks distribution**
  - cvs -d:pserver:anonymous@cvs.rocksclusters.org:/home/cvs/CVSROOT login
  - cvs -d:pserver:anonymous@cvs.rocksclusters.org:/home/cvs/CVSROOT checkout -r ROCKS_3_3_0 rocks
- **Go to the roll's directory**
  - **# cd rocks/src/roll/condor**
  - **# ls**

    CVS/ graphs/ Makefile nodes/ src/ version.mk

File graphs/default/condor.xml

```
<?xml version="1.0" standalone="no"?>
<graph>
      <description>Condor Roll</description>
      <changelog>$Log: condor.xml,v $</changelog>
      <order head="condor">
            <tail>condor-client</tail>
            <tail>condor-server</tail>
            <tail>condor-globus</tail>
       </order>
      <order head="condor-globus">
            <tail>globus-server</tail>
       </order>
       <edge from="hpc-client" to="condor-client" arch="i386"/>
       <edge from="hpc-server" to="condor-server" arch="i386"/>
       <edge from="hpc-base"   to="condor"        arch="i386"/>
       <edge from="globus-server">
              <to>condor-globus</to>
       </edge>
</graph>
```

File nodes/condor.xml

```
<?xml version="1.0" standalone="no"?>
…
<kickstart>
      …
      <package>rocks-condor</package>
      <package>roll-condor-usersguide</package>
      <package>compat-libstdc++-33</package>
      <package arch="x86_64">roll-condor-compat-libs</package>

<post>
<file name="/etc/man.config" mode="append">
MANPATH /opt/condor/man
</file>
</post>

</kickstart>
```

File nodes/condor-server.xml

```
…
<kickstart>
        …
        <package>condor</package>
        <package>rocks-condor-test</package>
<post>
cat &gt; /etc/rc.d/rocksconfig.d/post-90-condor-server &lt;&lt; 'EOF'
#!/bin/sh
useradd -c "Condor System Administrator" -d /export/home/condor condor &gt;&amp; /dev/null
chown -R condor.condor /export/home/condor
chmod a+rx /export/home/condor
…
. /etc/profile.d/rocks-condor.sh
cd $CONDOR_ROOT
$CONDOR_ROOT/sbin/CondorConf frontend <var name="Kickstart_PrivateHostname"/>.<var
        name="Kickstart_PublicDNSDomain"/>
</post>
…
</kickstart>
```

src/rocks/

- **create rocks-condor.sh (and rocks-condor.csh)**
- **rocks-condor.spec.in**

```
…
%post
if [ "$1" = 1 ] then
        /sbin/chkconfig --add rocks-condor
fi
cat >> /etc/services <<'EOF'
condor_negotiator  9614/tcp     # Condor daemon
condor_collector   9618/tcp     # Condor daemon
EOF
%preun
if [ "$1" = 0 ]
then
        /sbin/chkconfig --del rocks-condor
fi
…
```

src/rocks/ (cont'd)

- **rocks-condor**

```
# chkconfig: 345 90 90
…
PRECONFIG=/etc/rc.d/rocksconfig.d/post-90-condor-*
case "$1" in
start)
        if [ -f $PRECONFIG ]; then
            action $"Condor Post Installation" $PRECONFIG 2> /dev/null
            rm $PRECONFIG
        fi
        …
stop)
…
```

src/job-manager

- **# ls src/job-manager**

  globus_gram_job_manager_setup_condor-1.3-src.tar.gz
  globus_gram_reporter-2.0-src.tar.gz
  globus_gram_reporter_setup_condor-1.0-src.tar.gz
  condor-globus-job-manager.spec.in Makefile version.mk.in

- **Makefile**

  …

  GLOBUS_LOCATION = /opt/nmi
  GPT_LOCATION   = /opt/gpt
  SEDSPEC += \
  -e 's%@GLOBUS_LOCATION@%$(GLOBUS_LOCATION)%g' \
  -e 's%@GPT_LOCATION@%$(GPT_LOCATION)%g' \

src/job-manager (cont'd)

- condor-globus-job-manager.spec.in

```
%build
export GLOBUS_LOCATION=@GLOBUS_LOCATION@
export  GPT_LOCATION=@GPT_LOCATION@
$GPT_LOCATION/sbin/gpt-build \
        globus_gram_reporter-@REPORTER_VERSION@ @GLOBUS_FLAVOR@

mkdir -p $RPM_BUILD_ROOT/$GLOBUS_LOCATION
find $GLOBUS_LOCATION -name grid-info-gram-reporter.schema | cpio -pdu \
        $RPM_BUILD_ROOT

mkdir -p $GLOBUS_LOCATION
mount -t tmpfs tmpfs $GLOBUS_LOCATION
$GPT_LOCATION/sbin/gpt-build \
        globus_gram_reporter_setup_condor-@VERSION_REPORTER_SETUP@-src.tar.gz

find $GLOBUS_LOCATION | cpio -pdu $RPM_BUILD_ROOT
umount $GLOBUS_LOCATION
```

src/condor/Makefile

```
PKGROOT = /opt/condor
…
SEDSPEC += \
      -e 's%@GT3_INSTALL@%$(PKGROOT)/lib/gt3%g'

GT3DIR = $(NAME)-$(VERSION)/lib/gt3/

install::
      mkdir -p $(ROOT)/$(PKGROOT)
      mkdir -p $(ROOT)/$(PKGROOT)/bin
      install -m755 $(NAME)-$(VERSION)/bin/* $(ROOT)/$(PKGROOT)/bin
      …
build::
      tar -zxf $(TARBALL).tar.gz
      cd $(NAME)-$(VERSION); tar -xf release.tar
      $(SED) $(SEDSPEC) $(GT3DIR)/local-server-config.wsdd.in > \
            $(GT3DIR)/local-server-config.wsdd
      $(SED) $(SEDSPEC) $(GT3DIR)/server-config.wsdd.in > \
            $(GT3DIR)/server-config.wsdd
```