



Customizing Rocks Through Rolls

Building upon Open-
Source Rocks



What are Rolls?

- ◆ Software components that make up a Rocks system
- ◆ Mechanism for delivery of packages and configuration
- ◆ Rolls are the atomic unit in Rocks
- ◆ Rolls are how you should be getting your software onto a Rocks cluster



What's inside a Roll?

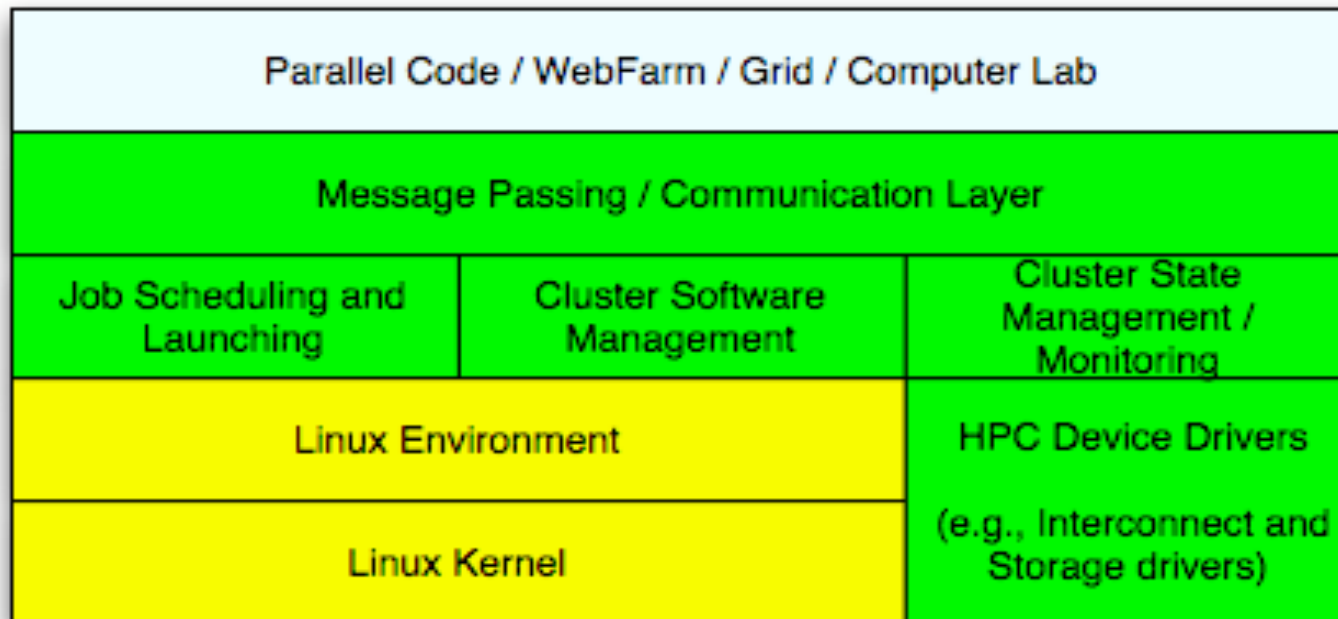
- ◆ Binaries - RPM format
- ◆ Configuration data
- ◆ Installation Map



Context of a Roll

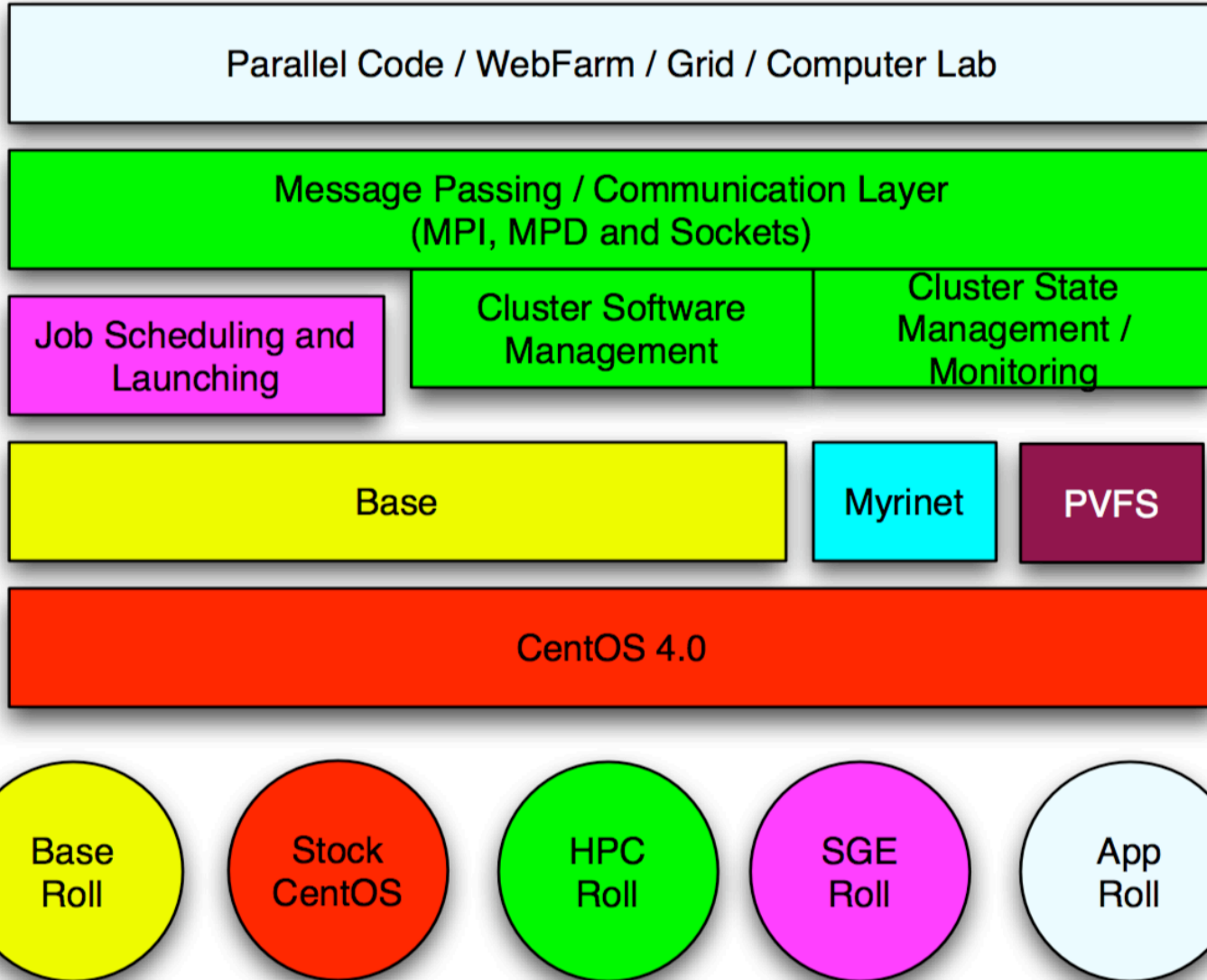


Normal RedHat Distribution





Distribution Based on Rolls





Treasure Hunting

- ◆ The treasure you seek is a fully installed and configured cluster
- ◆ What are the things you'll need



Map





Instruction set

Clues

1. Las Vegas restaurant promise to give the _____
2. Which Clive Peter is licensed to sell intoxicating liquor? _____
3. 360 degrees of suffering.
Hint if your a fresher ask someone who isn't
4. Hard chocolate powder creates Americans stereotype.
_____/_____
5. Down the middle, 3rd fish down. _____
6. How does Carling envisage us relaxing in the Piazza?
_____/_____
7. I have graduated and the end is near how can I live forever?
_____/_____
8. Which SU president was an 'infractor child', that suffered from 'rancid filch rot' and was treated in 'Hartford clinic'?
9. How many exterior walls does a detached Whitefields have?
10. After four o'clock, follow V's from on high. Where do they lead? ____
11. Look away. What medieval alcohol is on display?
12. Dining has never been so self-explanatory.
13. Ropes and fire disturb the sleepers, who left them where they lay?
_____/_____
14. Now you too must leave them where they lay. What set of three and group of four are within a casual stare, while standing in a metal square?
_____/_____
15. Triangular green, enclosing groovy sculpture - but how many wooden frames are there to support your frame from its view?
16. On the floor that treasure island belongs to, Adam and _____'s broom cupboard.
17. I think of a title, I swap the last two words and find it surrounded by those words. What are they surrounded by?
18. What is the only surname that is repeated in the physics academic staff?
19. Upon the clear blue sandy shore a collection of subjects collate.
20. Head to the crescent sea, from the port hole how many whales can you see?
21. 522 is the sum of four numbers on what objects? Compute...
22. How many English litres left, along the top of the colour cascade?
Hint not through doors

If blanks are given the word/words answer should fill the blanks.
Look at the map for positional clues to the location of the answer.
The location for all clues is not given but remember,
All clues lead on from each other and are reasonably close to the last.
Dotted lines represent paths that can be followed.
All numeric answers should be written as words.



Resources





Translate that to a Roll

- ◆ Graph file \Leftrightarrow Installation Map \Leftrightarrow Map
- ◆ Node Files \Leftrightarrow Configuration Data \Leftrightarrow Instruction set
- ◆ RPM/Binaries \Leftrightarrow Resources



Making your own Roll



How do you start a Roll?

- ◆ On a Rocks V system -
 - # cd /export/site-roll/rocks/src/roll
 - # ./bin/make-roll-dir.py --name test
- ⇒ This creates a directory structure for a Roll, with graphs directory, nodes directory, and source directory.



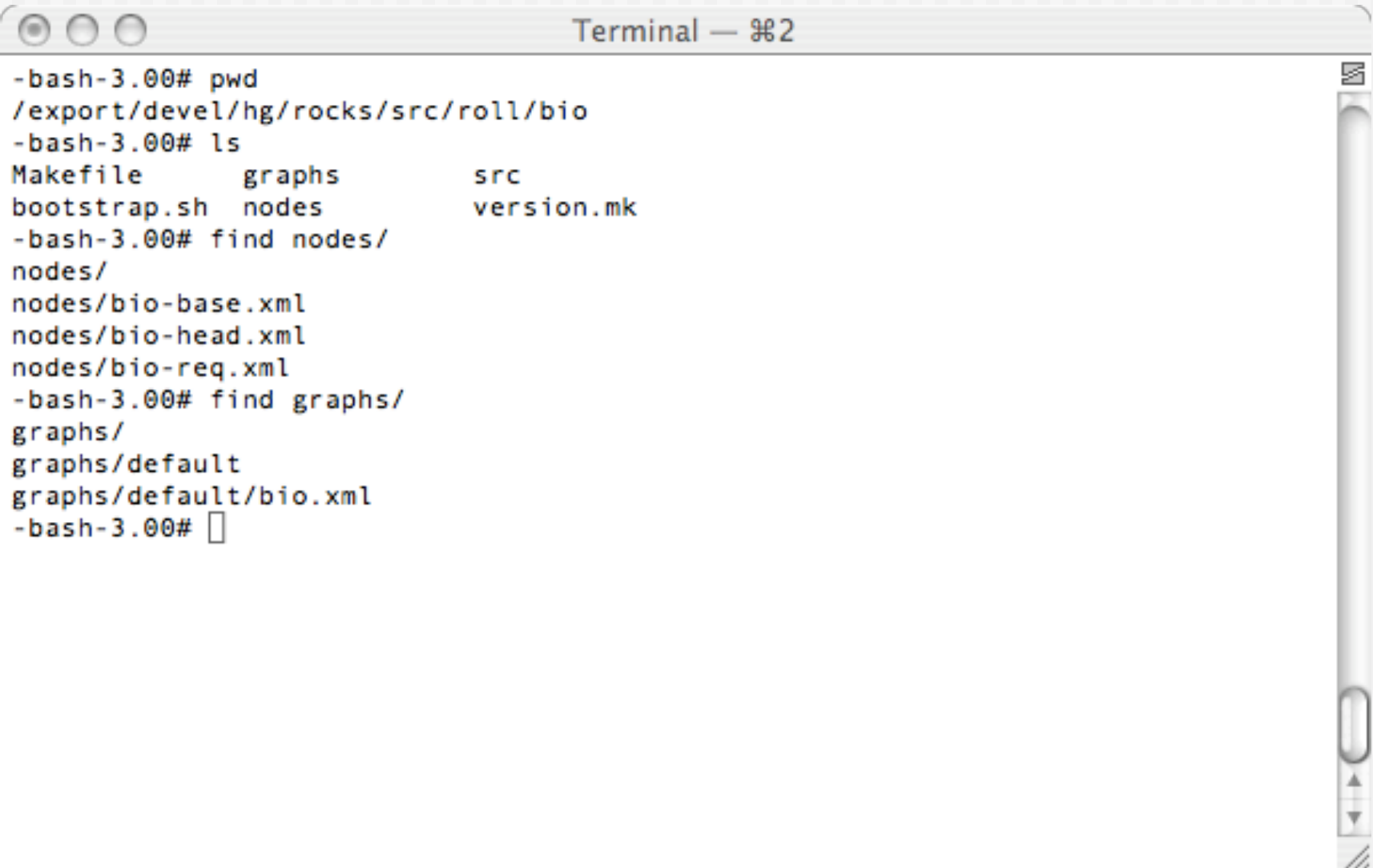
Example: Bio Roll



What's inside the Bio Roll?

- ◆ Bio-informatics software -
 - ⇒ NCBI Blast
 - ⇒ MPI Blast
 - ⇒ HMMER
 - ⇒ GROMACS
 - ⇒ EMBOSS
 - ⇒ Phylip
 - ⇒ T-Coffee

What's inside the Roll?



```
Terminal — 2
-bash-3.00# pwd
/export/devel/hg/rocks/src/roll/bio
-bash-3.00# ls
Makefile      graphs      src
bootstrap.sh  nodes      version.mk
-bash-3.00# find nodes/
nodes/
nodes/bio-base.xml
nodes/bio-head.xml
nodes/bio-req.xml
-bash-3.00# find graphs/
graphs/
graphs/default
graphs/default/bio.xml
-bash-3.00#
```

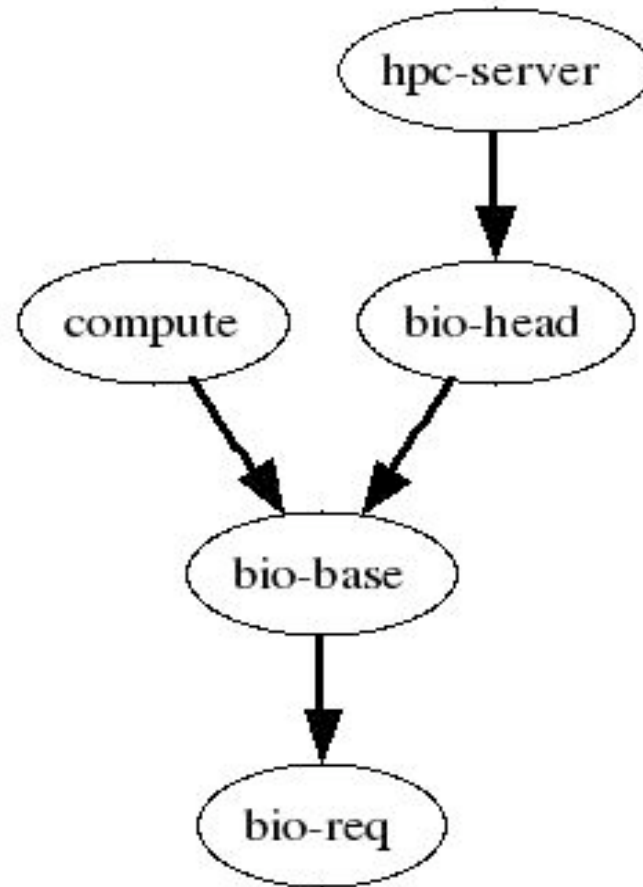



What's inside the graph file?

```
<graph>  
<edge from="compute">  
  <to>bio-base</to>  
</edge>  
.....  
<edge from="hpc-server">  
  <to>bio-head</to>  
</edge>  
</graph>
```



How does the graph look?





How does a node file look?

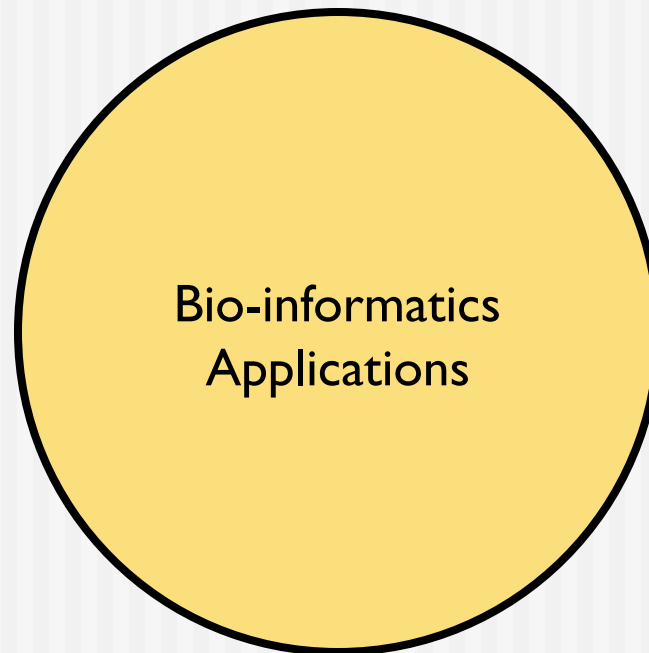
```
<kickstart>
  <package>hammer</package>
  <package>ncbi</package>
  .....
  <package>mpiblast</package>
<post>
# Shell Scripts to be run after installation
<file name=.ncbirc>
file contents
</file>
...
...
# Shell Scripts to be run after installation
</post>
</kickstart>
```

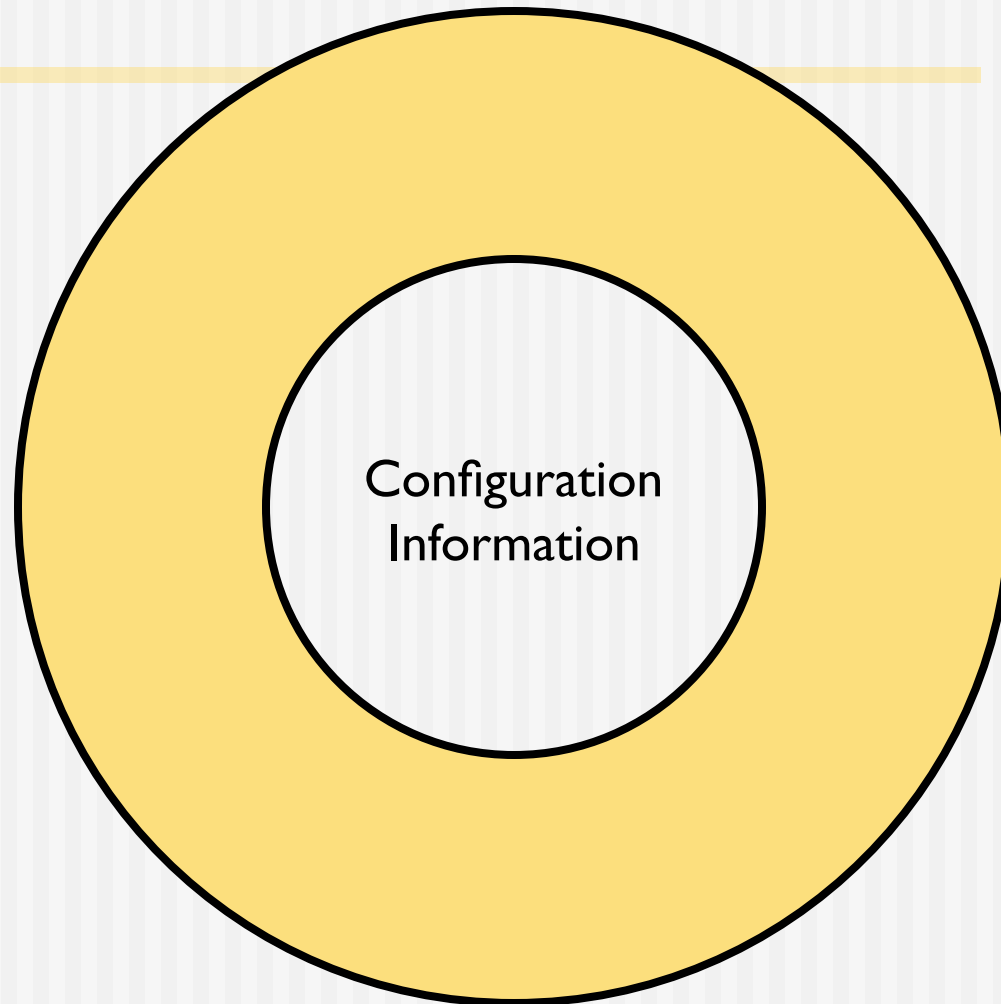


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- ◆ Node files are the instruction sets of the roll



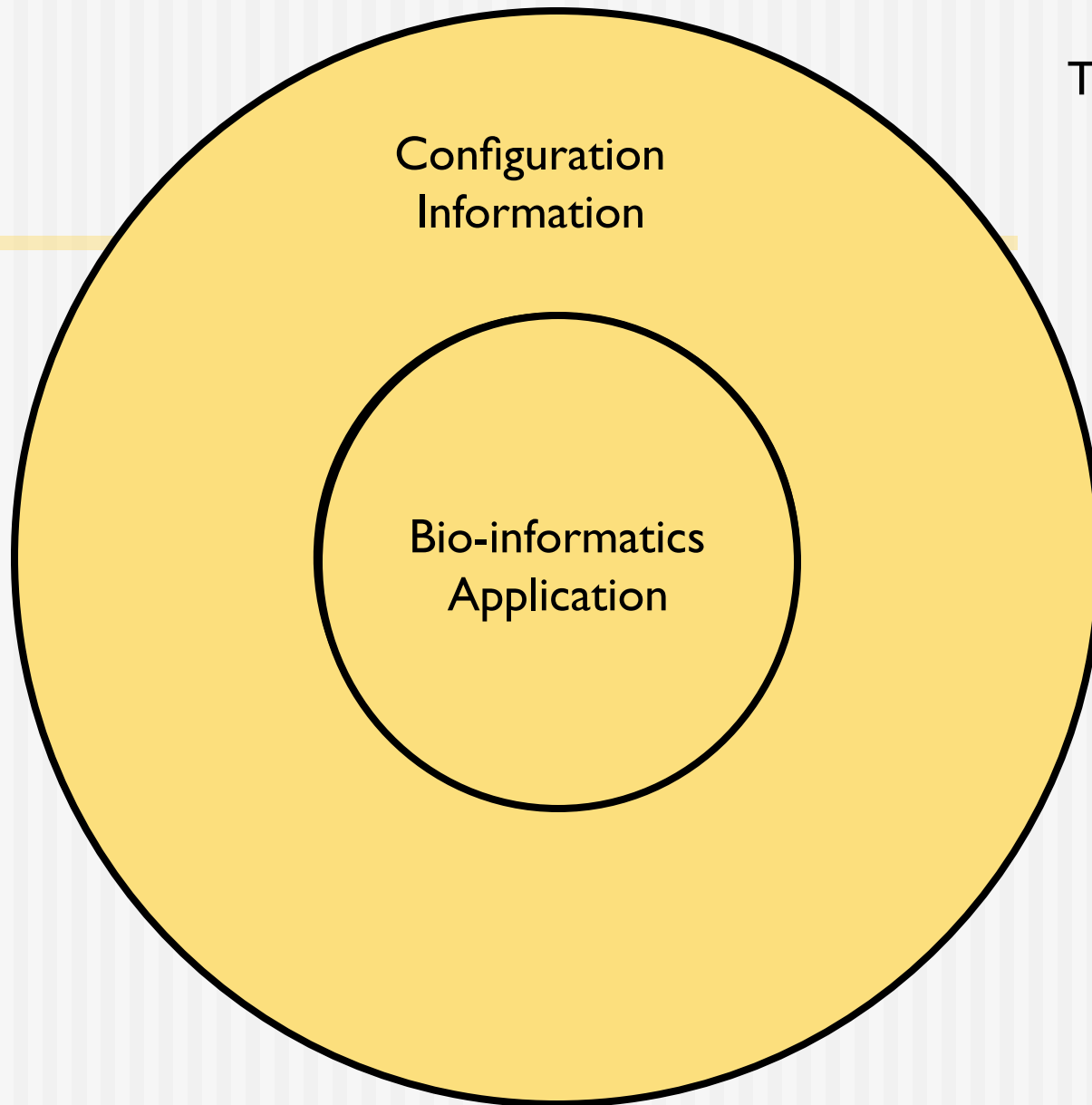
To Re-iterate





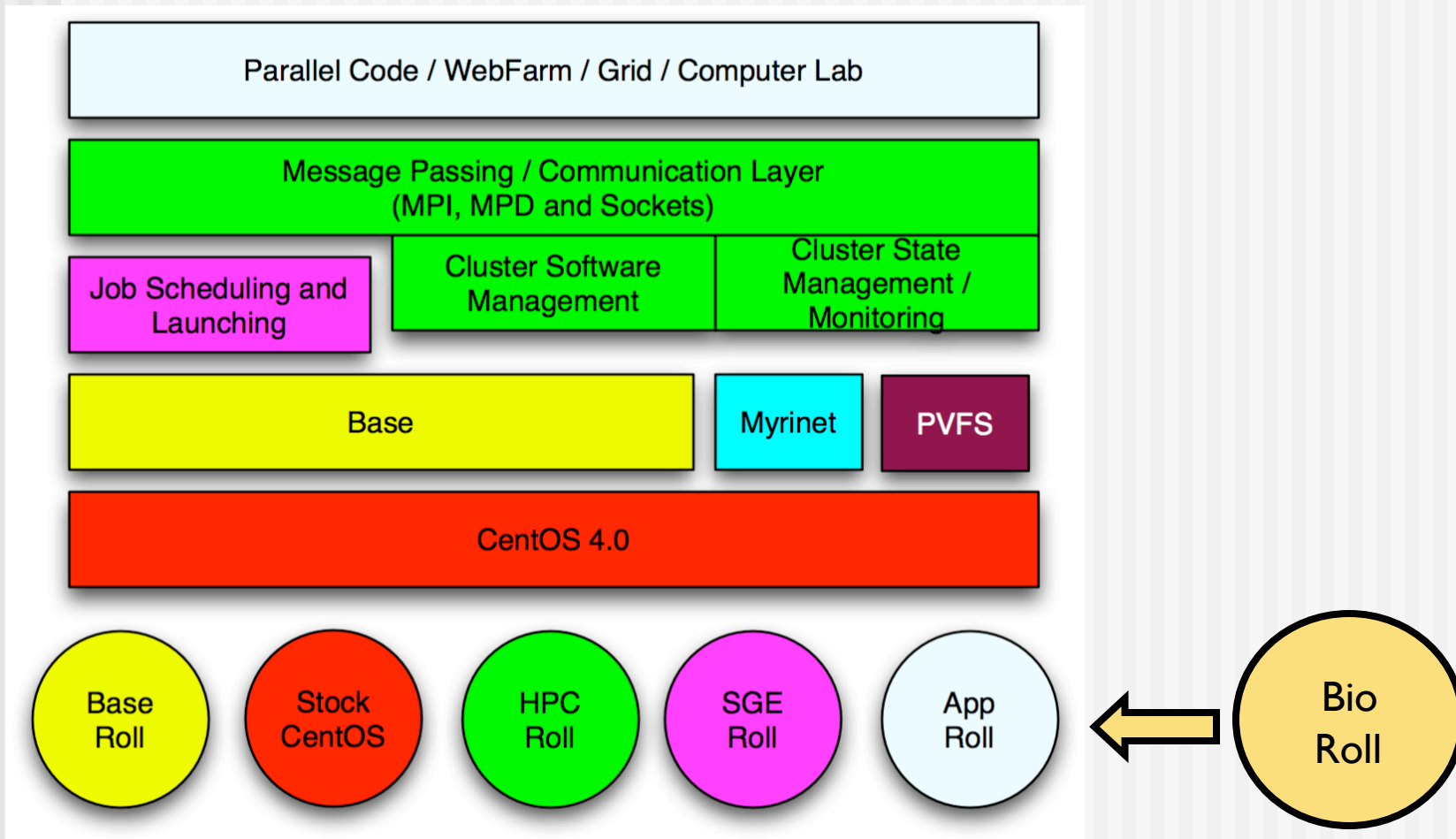


THE ROLL



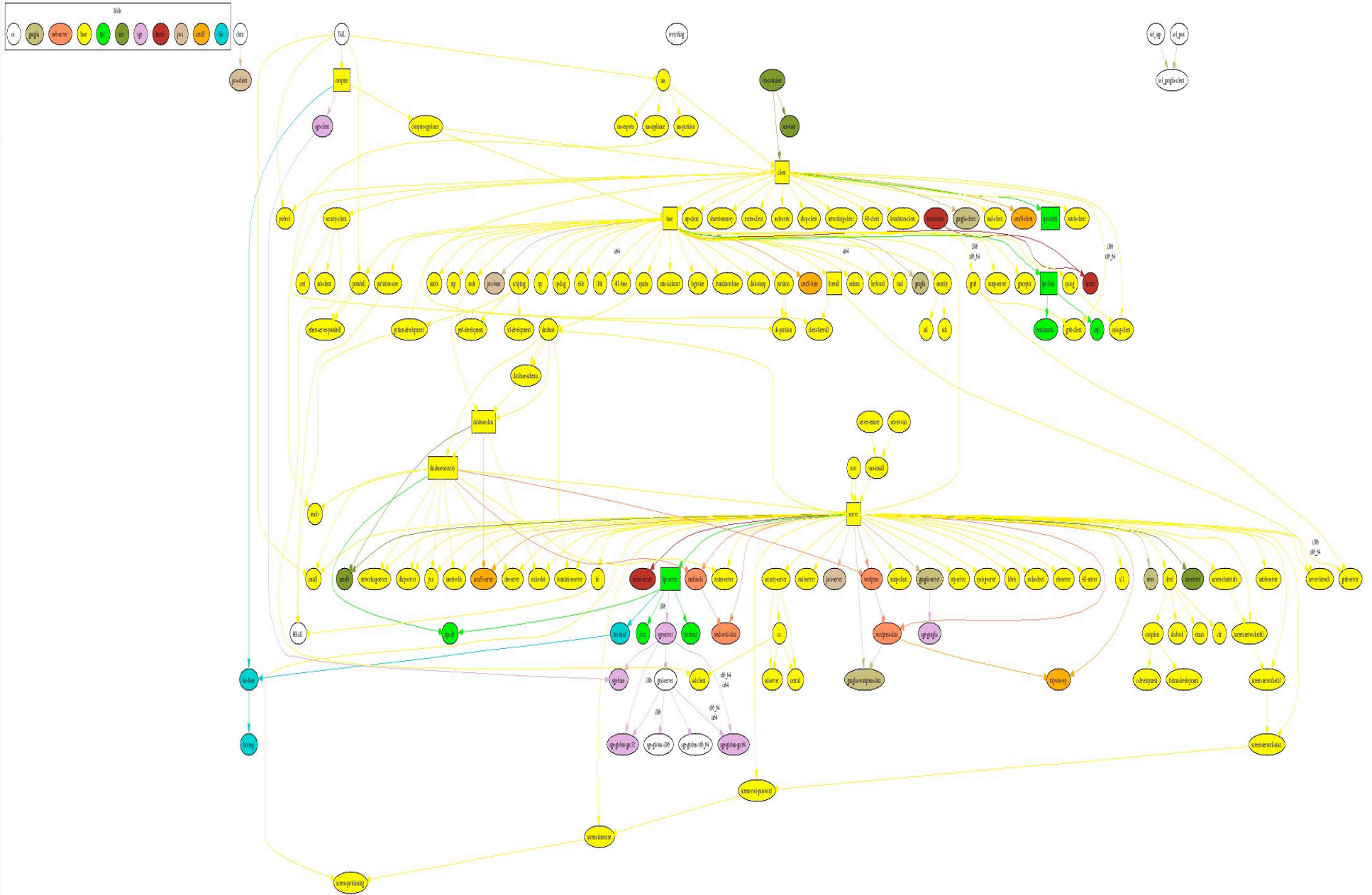


How does it fit in?





How does it fit in?





How does all this help you?

- ◆ Roll mechanism is the recommended way of deploying software on a Rocks cluster
- ◆ It fits into the framework of Rocks
- ◆ It's reproducible
- ◆ It scales