

An aerial photograph of a coastal delta system, likely the Rhine-Meuse delta, showing a complex network of waterways and land. A semi-transparent white box is overlaid on the upper portion of the image, containing the title text. The text is in a white, serif font. The background image shows the intricate patterns of the delta, with various shades of brown, tan, and blue representing different land and water features.

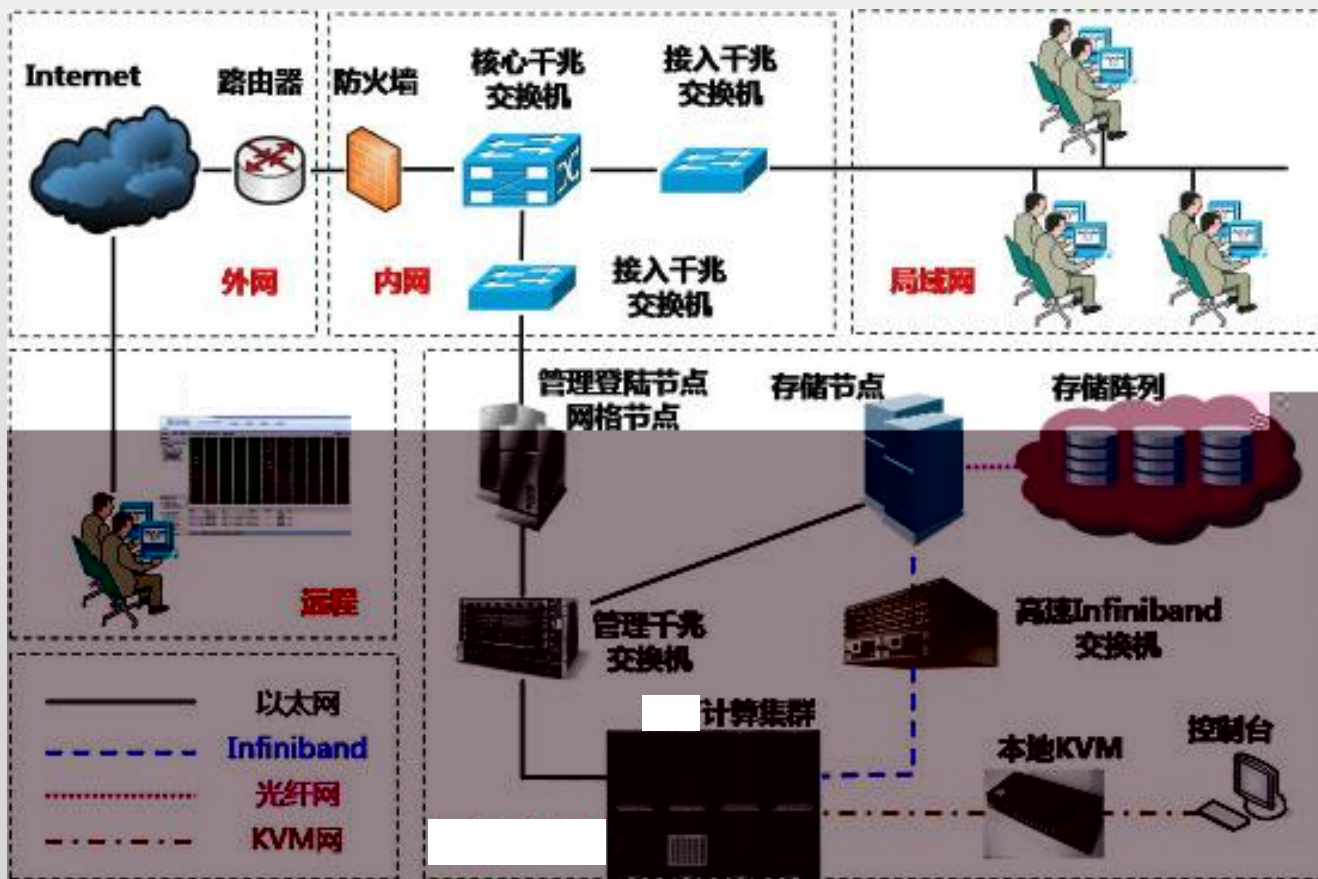
Delft3D在高性能集群上的并行计算

2013-11

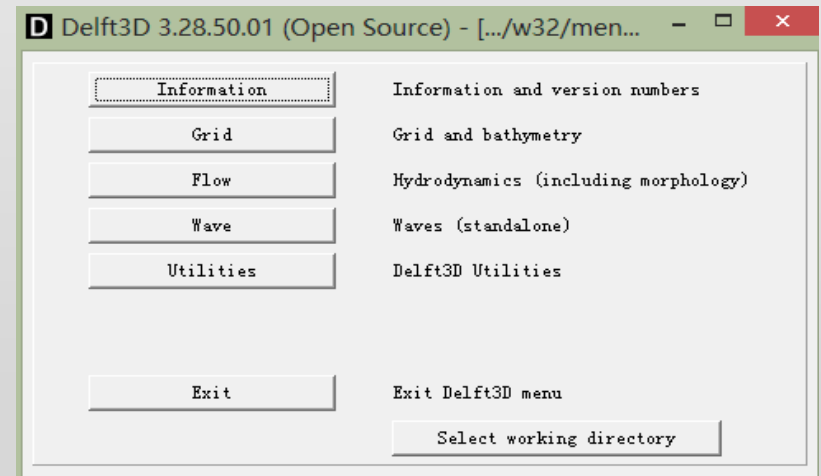
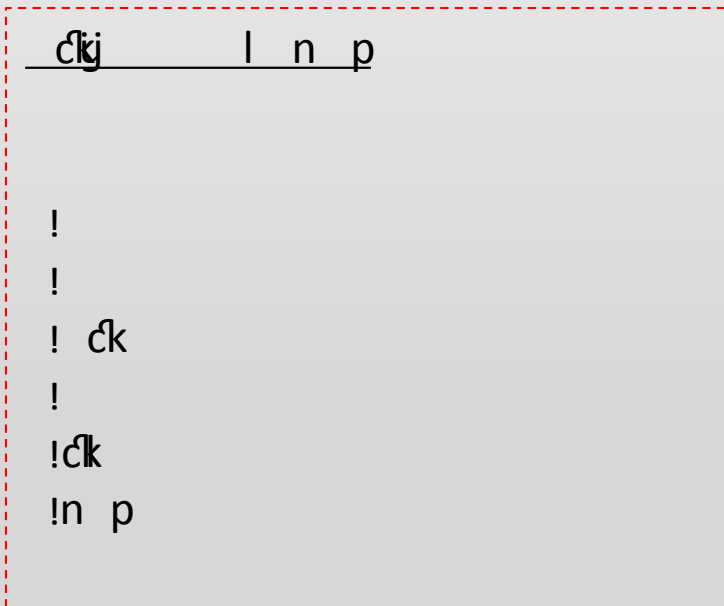
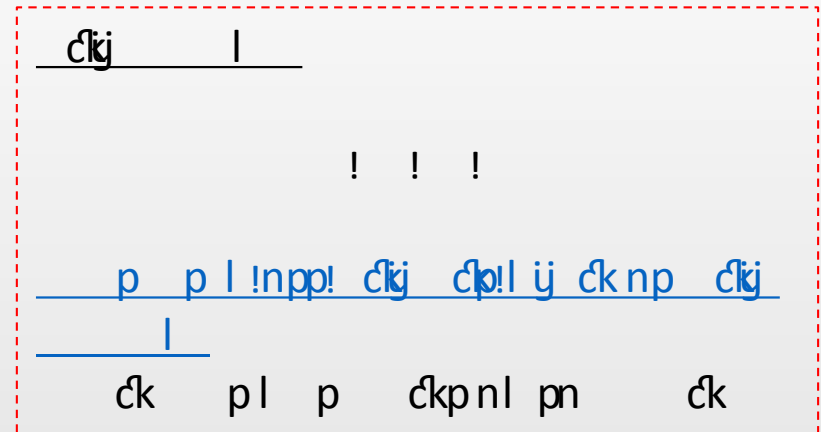
- 高性能计算集群
- Delft3D
- 并行计算实现步骤
- 算例现场演示

(一) 高性能计算集群

IBM 1350 37 12
CentOS6.2 (x86-64Edition)
GNU Compiler Intel Compiler 11.1 (non-commercial edition)
mpich2-1.5 mvapich2-1.8 OpenMPI1.6.4



(二) Delft3D



(三) 并行计算实现步骤

1. 客户端—Xshell & XFTP

PP p dlij P

The screenshot shows the website interface for the College of Port, Coastal and Offshore Engineering at Hehai University. The navigation bar includes links for '新闻中心', '学院简介', '机构设置', '师资队伍', '学科建设', '科学研究', '人才培养', '党群工作', '学生天地', '招生就业', '校友之家', and '下载中心'. The '下载中心' (Download Center) is highlighted in red. Below the navigation bar, there is a banner with the slogan '艰苦奋斗 实事求是 严格要求 勇于探索'. The main content area is divided into '下载中心' and '科研' (Research). The '科研' section lists several articles, with '集群常用软件' (Cluster Common Software) highlighted in red. A modal window is open, displaying the details of the '集群常用软件' article, including the file 'Xshell&Xftp.zip' which is also highlighted in red. The modal window includes a '关闭窗口' (Close Window) button.

河海大学
港口海岸与近海工程学院

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高性能集群应用第一次培训讲义 2013-06-25

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集群常用软件

发布人: 港航院 发布时间: 2013-07-11 访问次数: 69

Xshell&Xftp.zip

港航院

关闭窗口

(三) 并行计算实现步骤

2. 文件准备—模型配置文件

config_flow2d3d.ini

!p

```
config_flow2d3d.ini x job.sh x
0 10 20 30 40 50 60 70 80
1 [FileInformation]
2   FileCreatedBy      = runttestbank Tcl scripts
3   FileCreationDate  = Mon Dec 06 2:55:54 PM W. Europe Standard Time 2010
4   FileCreationTime  =
5   OutputDir         =
6   Name              = flow2d3d
7   MdfFile           = nestrivert
8 2
:   yfk .
```

(三) 并行计算实现步骤

2. 文件准备—shell脚本文件

job.sh

```
config_flow2d3d.ini x job.sh x
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
1 #!/bin/sh
2 # __INFO_MARK_BEGIN__
3 # Welcome to use EasyCluster V1.6 All Rights Reserved.
4 #
5 # __INFO_MARK_END__
6 #
7 ## -S /bin/sh
8 ## -N test
9 ## -j y
10 ## -o .
11 ## -e .
12 ## -cwd
13 ## -q short.q
14 ## -pe mvapi 24-24
15 source ~/.bashrc
16 hash -r
17 export path=$TMPDIR:$path
18 /usr/local/mpich2_1.5/bin/mpexec -launcher rsh -n $NSLOTS -f $TMPDIR/machines /usr/local/Delft3D.5.00.06.1677/bin/deltares_hydro.tcl config_flow2d3d.ini
19
```

clj



(三) 并行计算实现步骤

3. 实现并行计算—cd, qsub, qstat

```
[redacted@mnode-ib ~]$ clear
[redacted@mnode-ib ~]$ cd ls/test
[redacted@mnode-ib test]$ qsub job.sh
Your job 1365 ("test") has been submitted
[redacted@mnode-ib test]$ qstat
```

job-ID	prior	name	user	state	submit/start at	queue
1361	0.60500	gsJ05R18	[redacted]	r	11/06/2013 15:21:25	long.
q@node22-ib			48			
1357	0.50500	job	[redacted]	r	11/06/2013 14:33:10	seria
l.q@node32-ib			1			
1358	0.50500	job	[redacted]	r	11/06/2013 14:34:10	seria
l.q@node33-ib			1			
1359	0.50500	job	[redacted]	r	11/06/2013 14:39:25	seria
l.q@node34-ib			1			
1356	0.60500	gs07JR013	[redacted]	r	11/06/2013 10:19:25	short
.q@node16-ib			48			
1365	0.55394	test	[redacted]	r	11/07/2013 00:59:10	short
.q@node30-ib			24			
1362	0.60500	N09_R119	[redacted]	r	11/06/2013 15:23:25	short
.q@node5-ib			48			
1360	0.60500	gsJ05R010	[redacted]	r	11/06/2013 15:20:10	short
.q@node8-ib			48			

```
[redacted@mnode-ib test]$
```

(三) 并行计算实现步骤

3. 实现并行计算—tail

```
1356 0.60500 gs07JR013 [redacted] r 11/06/2013 10:19:25 short
.q@node16-ib 48
1365 0.55394 test [redacted] r 11/07/2013 00:59:10 short
.q@node30-ib 24
1362 0.60500 N09_R119 [redacted] r 11/06/2013 15:23:25 short
.q@node5-ib 48
1360 0.60500 gsJ05R010 [redacted] r 11/06/2013 15:20:10 short
.q@node8-ib 48
[redacted@mnnode-ib test]$ tail test.o1365
Time to finish 2h 3m, 8.5% completed, time steps left 47364
Time to finish 2h 3m, 8.5% completed, time steps left 47363
Time to finish 2h 3m, 8.5% completed, time steps left 47362
Time to finish 2h 3m, 8.5% completed, time steps left 47361
Time to finish 2h 3m, 8.5% completed, time steps left 47360
Time to finish 2h 3m, 8.5% completed, time steps left 47359
Time to finish 2h 3m, 8.5% completed, time steps left 47358
Time to finish 2h 3m, 8.5% completed, time steps left 47357
Time to finish 2h 3m, 8.5% completed, time steps left 47356
Time to finish 2h 3m, 8.5% completed, time steps left 47355
[redacted@mnnode-ib test]$ tail test.o1367
D_Hydro [1383765624.964204] <anonymous> >> d_hydro shutting down normally
D_Hydro [1383766958.700083] <anonymous> >> d_hydro shutting down normally
D_Hydro [1383765624.964288] <anonymous> >> d_hydro shutting down normally
```

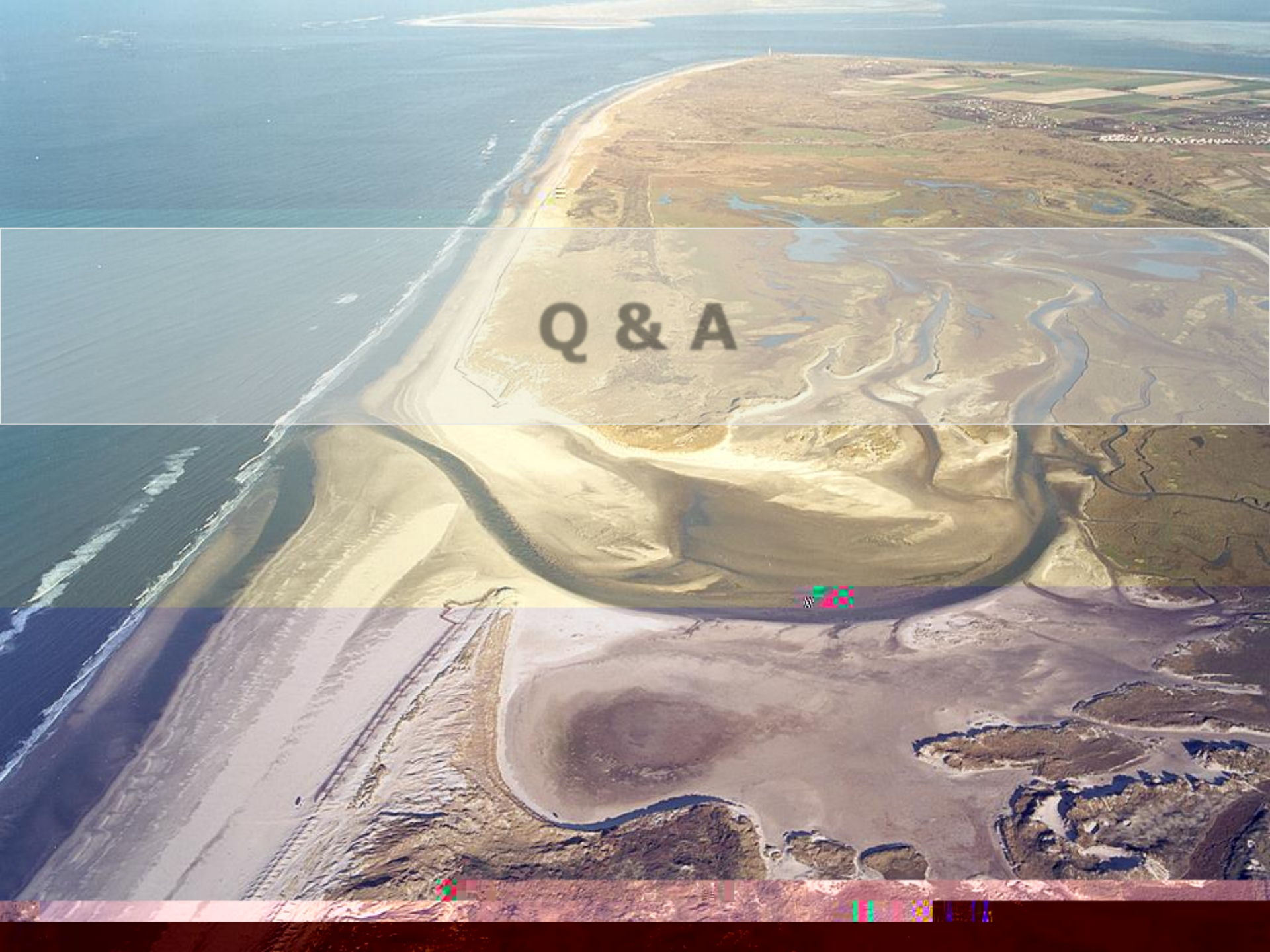
(三) 并行计算实现步骤

3. 实现并行计算—qdel

```
Time to finish 1h 53m, 15.9% completed, time steps left 43531
Time to finish 1h 53m, 15.9% completed, time steps left 43530
Time to finish 1h 53m, 15.9% completed, time steps left 43529
Time to finish 1h 53m, 15.9% completed, time steps left 43528
Time to finish 1h 53m, 15.9% completed, time steps left 43527
Time to finish 1h 53m, 15.9% completed, time steps left 43526
Time to finish 1h 53m, 15.9% completed, time steps left 43525
Time to finish 1h 53m, 15.9% completed, time steps left 43524
Time to finish 1h 53m, 15.9% completed, time steps left 43523
```

```
[redacted@mnode-ib test]$ qdel 1365 n
redacted has registered the job 1365 for deletion
[redacted@mnode-ib test]$ █
```


(四) 算例现场演示



Q & A