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# **PACS data warehouse - helping radiology management**

**Control Tower**

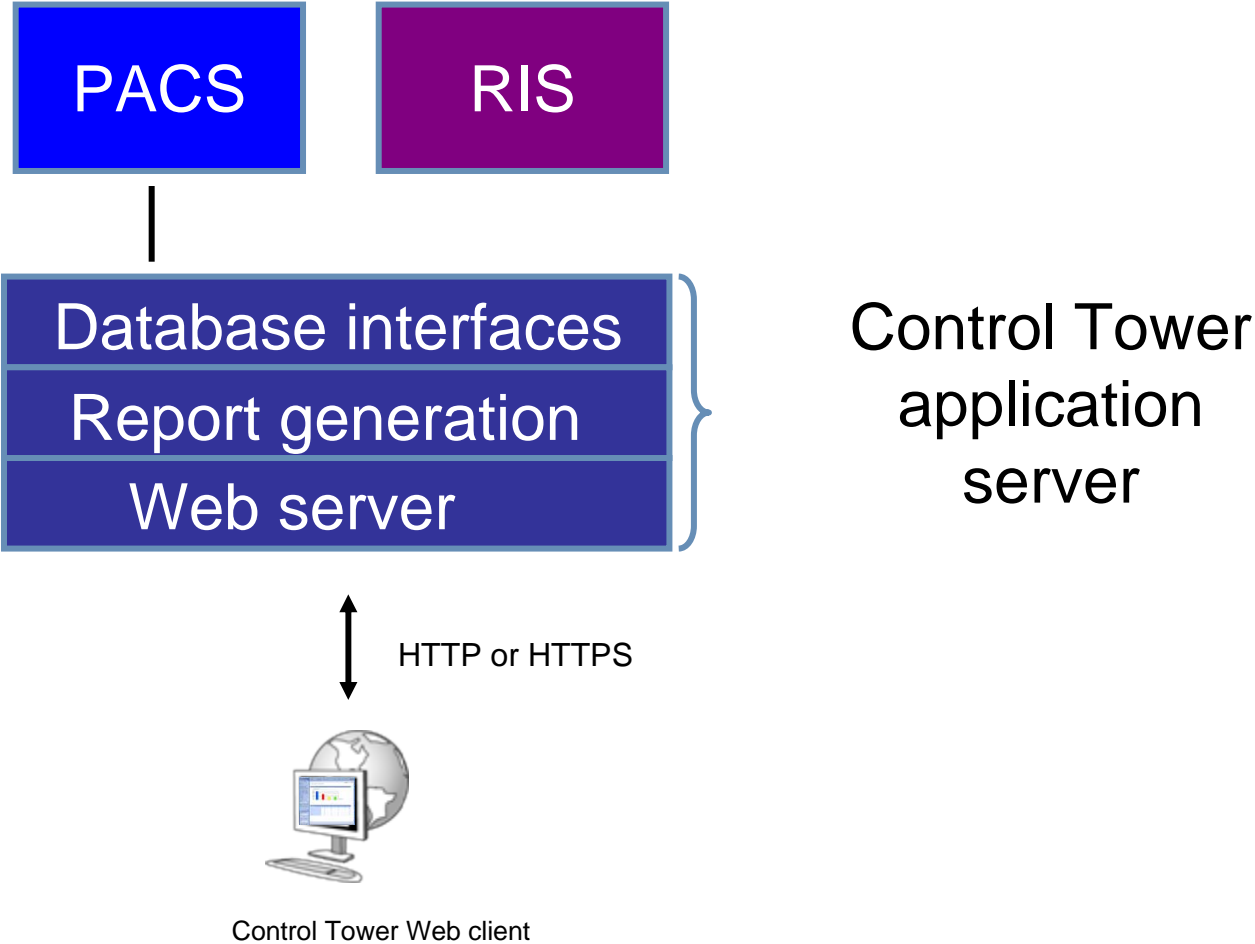
**Carlos Cardoso**  
**carlos.cardoso@sectra.com**

# Questions normally not answered

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- How do we manage the installed system (PACS) based on facts and not feelings?
  - Investments – new or redistributed ws, storage, servers, etc;
  - Quality of internal work;
  - New modalities -> Storage needs;
  - Cooperation with other hospitals - telerradiology;
- How does the organization monitor it's own experience?

# Product structure Control Tower



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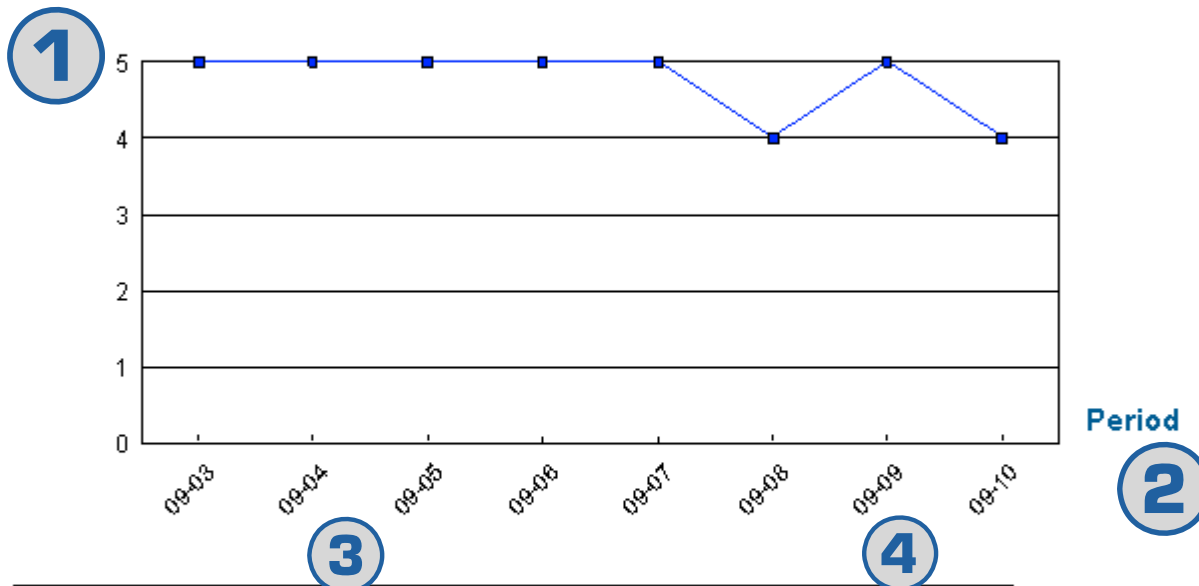
# Some examples

# License usage - concurrent user reports

PACS Concurrent Users Report

From: 1/3/2009 0:00 To: 31/10/2009 23:59

Number of concurrent users



Period	Max value	Median value
09-03	32,00	5,00
09-04	33,00	5,00
09-05	28,00	5,00
09-06	32,00	5,00
09-07	25,00	5,00
09-08	28,00	4,00
09-09	34,00	5,00
09-10	29,00	4,00

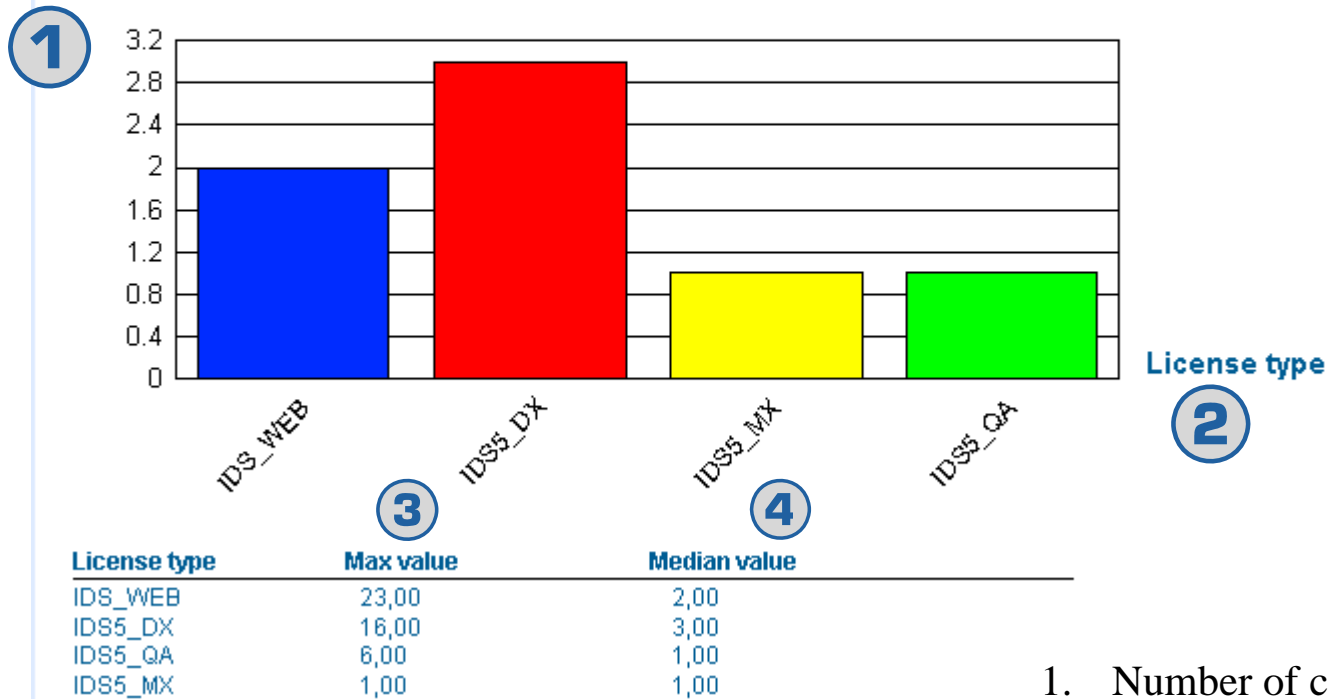
1. Number of concurrent users,
2. Period,,
3. Maximum numbers,
4. Median numbers.

# License usage - concurrent user reports

PACS Concurrent Users Report - by license type

From: 1/3/2009 0:00 To: 31/10/2009 23:59

Number of concurrent users



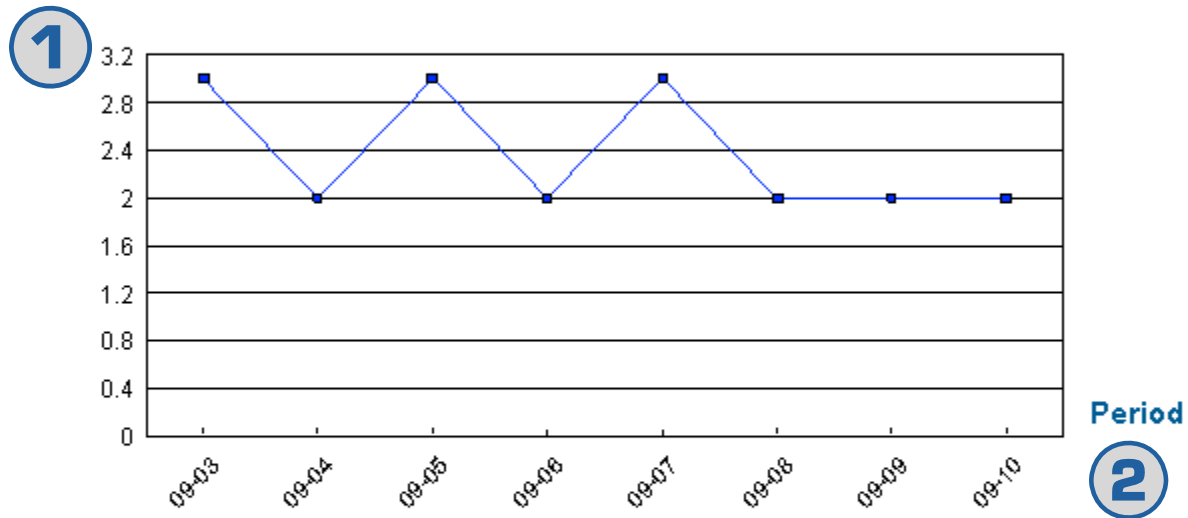
1. Number of concurrent users,
2. License type,
3. Maximum numbers,
4. Median numbers.

# License usage - concurrent user reports

PACS Concurrent Users Report - by license type - drilled down on IDS\_WEB

From: 1/3/2009 0:00 To: 31/10/2009 23:59

Number of concurrent users for License type = IDS\_WEB



Period	Max value	Median value
09-03	17,00	3,00
09-04	18,00	2,00
09-05	16,00	3,00
09-06	17,00	2,00
09-07	15,00	3,00
09-08	13,00	2,00
09-09	23,00	2,00
09-10	17,00	2,00

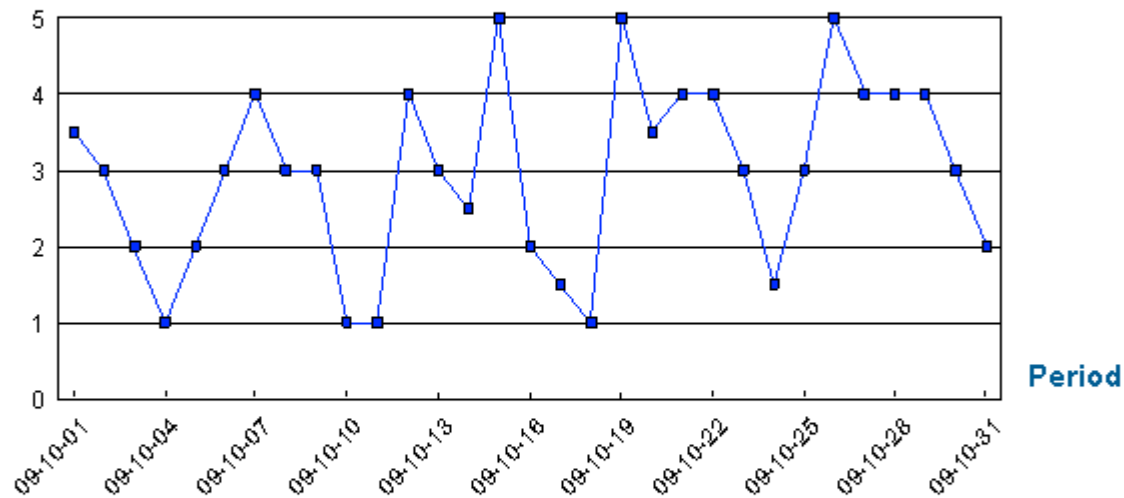
1. Number of concurrent users,
2. Period,

# License usage - concurrent user reports

PACS Concurrent Users Report - by license type - drilled down on IDS\_WEB

From: 1/10/2009 0:00 To: 31/10/2009 23:59

Number of concurrent users for License type = IDS\_WEB



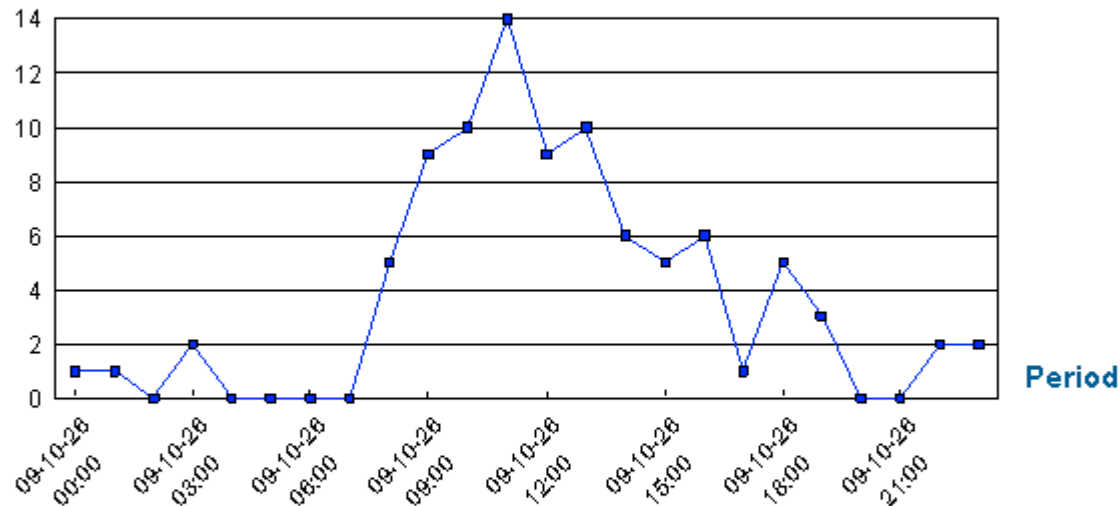
Period	Max value	Median value
09-10-01	14,00	3,50
09-10-02	9,00	3,00
09-10-03	5,00	2,00
09-10-04	3,00	1,00
09-10-05	4,00	2,00
09-10-06	13,00	3,00
09-10-07	11,00	4,00
09-10-08	15,00	3,00
09-10-09	11,00	3,00

# License usage - concurrent user reports

PACS Concurrent Users Report - by license type - drilled down on IDS\_WEB

From: 26/10/2009 0:00 To: 26/10/2009 23:59

Number of concurrent users for License type = IDS\_WEB



Period	Max value	Median value
09-10-26 00:00	1,00	1,00
09-10-26 01:00	1,00	1,00
09-10-26 02:00	0,00	0,00
09-10-26 03:00	2,00	2,00
09-10-26 04:00	0,00	0,00
09-10-26 05:00	0,00	0,00
09-10-26 06:00	0,00	0,00
09-10-26 07:00	0,00	0,00
09-10-26 08:00	0,00	0,00
09-10-26 09:00	5,00	5,00

# PACS – exam report

## PACS Exam Report (basic)

From: 1/3/2009 0:00 To: 31/10/2009 23:59

Row

Modality

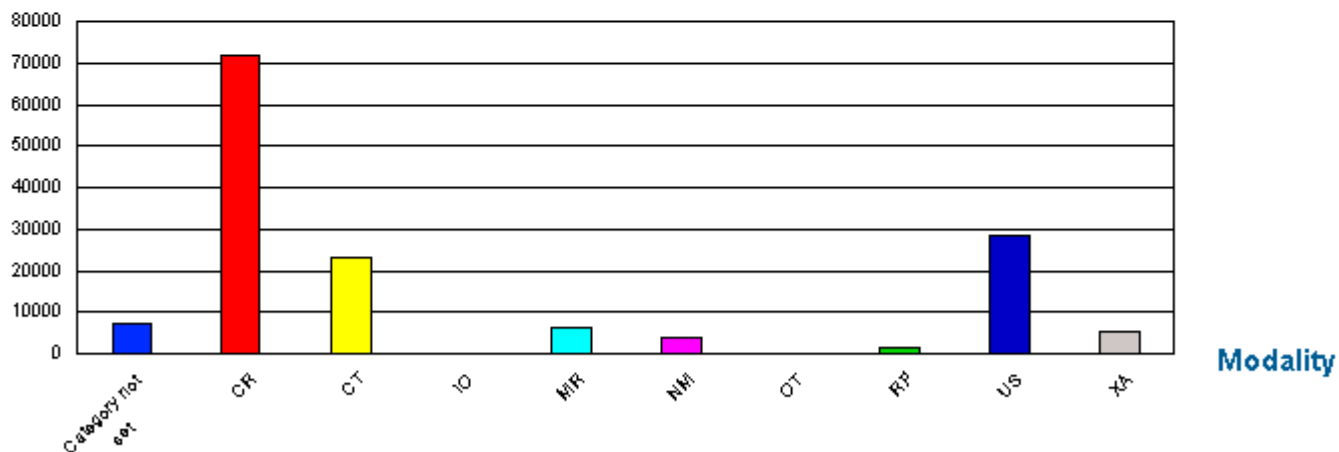
Column

Time Interval

Apply

### Report Graph

Number of exams



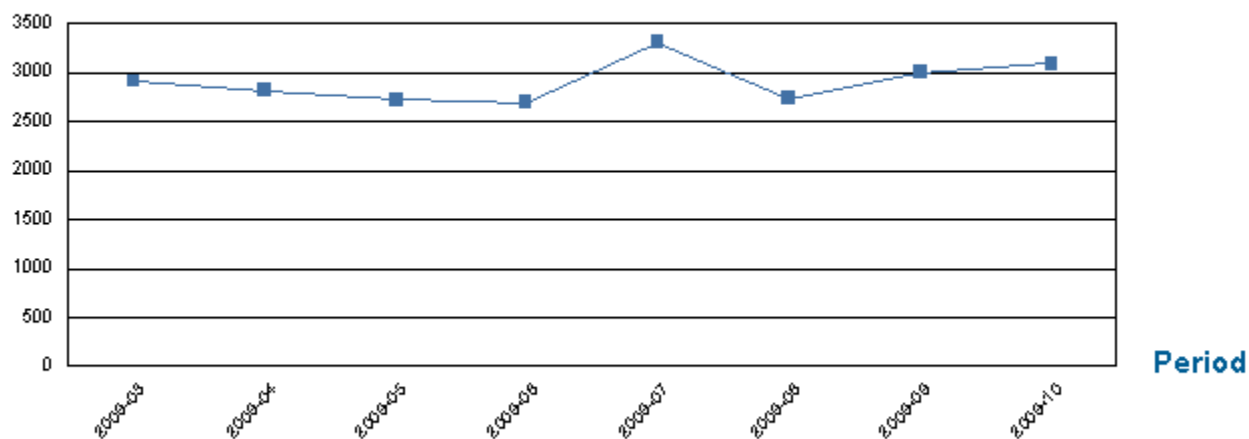
Sum : 148.054

# PACS – exam report

Modality : Time Interval									
	2009-03	2009-04	2009-05	2009-06	2009-07	2009-08	2009-09	2009-10	SUM
Category not set	1.042	955	867	770	947	663	843	1.031	<b>7.118</b>
CR	9.600	8.801	9.014	8.823	9.107	8.042	9.148	9.431	<b>71.966</b>
CT	2.909	2.820	2.720	2.693	3.311	2.733	3.003	3.089	<b>23.278</b>
IO	1	0	0	1	1	0	1	0	<b>4</b>
MR	828	725	806	667	840	798	773	833	<b>6.270</b>
NM	535	518	559	495	665	391	438	448	<b>4.049</b>
OT	8	10	5	0	3	10	1	0	<b>37</b>
RF	198	161	167	159	165	169	180	164	<b>1.363</b>
US	3.792	3.302	3.472	3.340	3.835	3.031	3.966	3.928	<b>28.666</b>

## Report Graph

Number of exams for Modality = CT



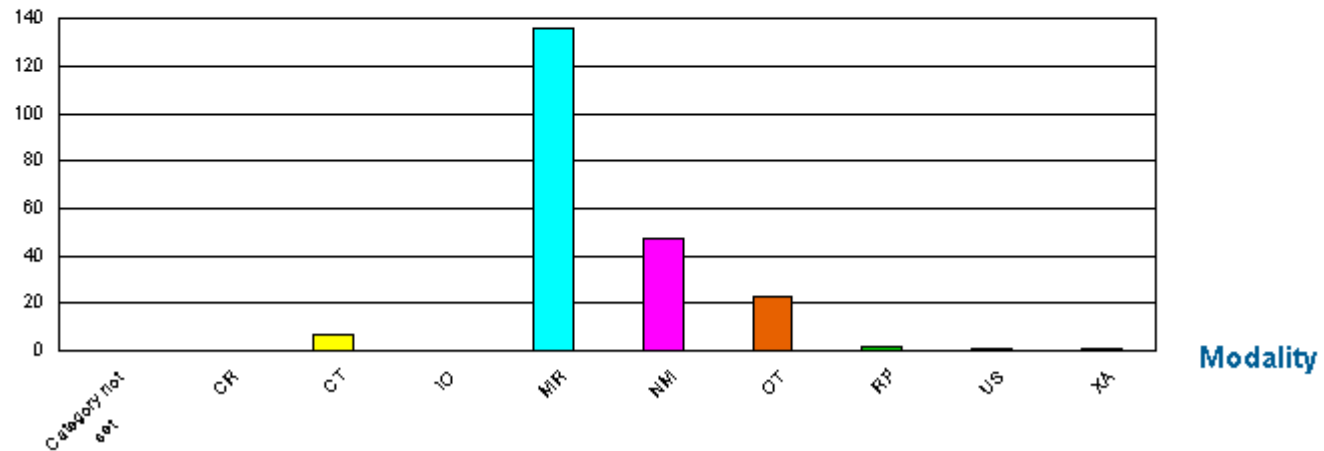
Sum CT: 23.278

# PACS – turnover time

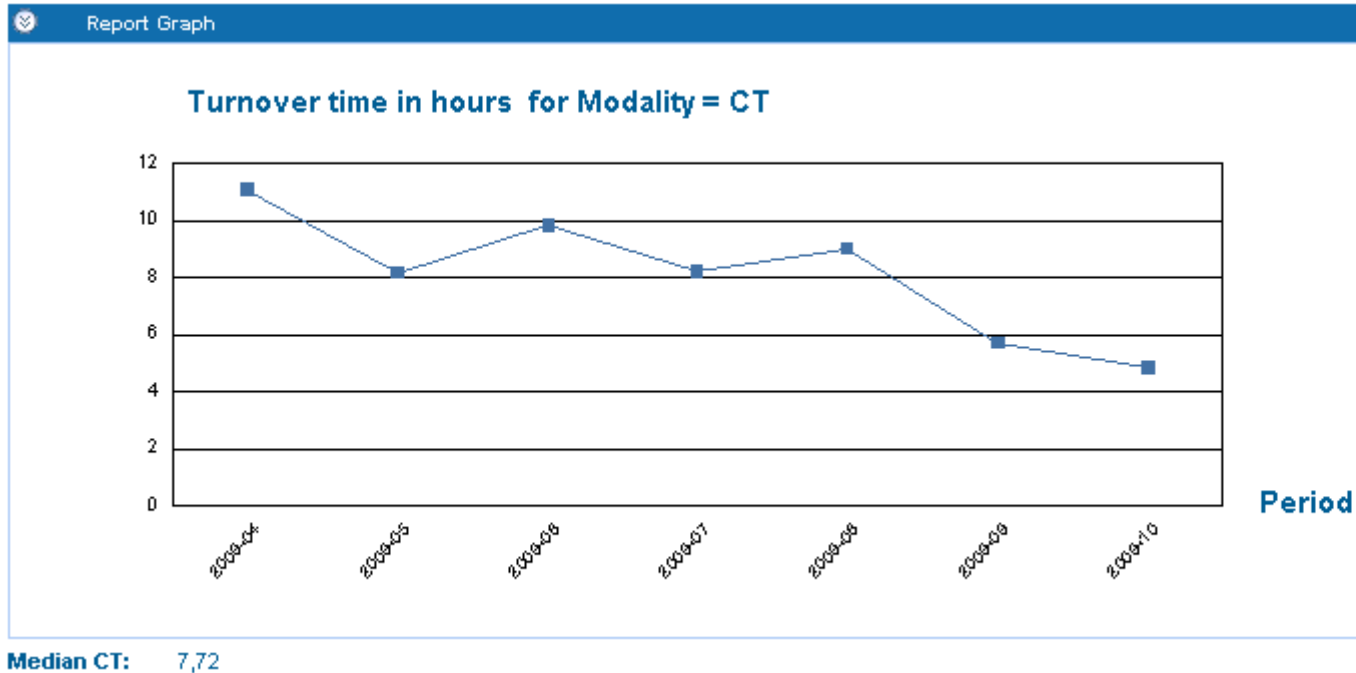
## PACS Exam Turnover Time Report

Report Graph

Turnover time in hours



# PACS – exam report



# Workstation - system usage

## PACS System Usage Report - by host

From: 1/3/2009 0:00 To: 31/10/2009 23:59

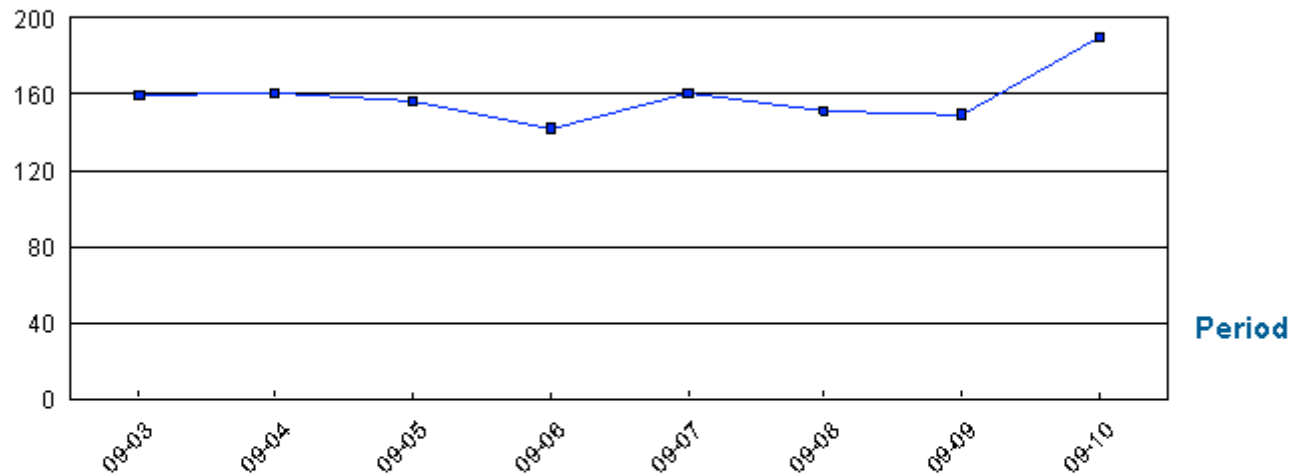
**Total System Usage (in Hours)** 26.214,13

<b>Host</b>	<b>System Usage (in Hours)</b>	<b>Percentage(%)</b>
hsa1587	1.269,54	21,59
hsa1552	1.133,59	19,28
HSA1550	999,73	17,00
HSA1524	988,09	16,80
hsa1545	885,53	15,06
HSA1557	826,57	14,06
HSA1522	812,52	13,82
hsa0015	799,59	13,60
hsa1547	762,65	12,97
HSA1558	747,16	12,71
hsa1553	732,95	12,47
hsa1551	692,06	11,77
HSA1560	655,98	11,16
HSA1549	623,96	10,61
HSA1523	600,00	10,20
HSA1521	599,52	10,20
HSA1556	514,36	8,75
hsa1593	452,95	7,70
hsa1546	449,96	7,65

# Workstation - system usage

PACS System Usage Report - by host - drilled down on hsa1587

System Usage (in Hours) for Host = hsa1587



Total during period 1.269,54

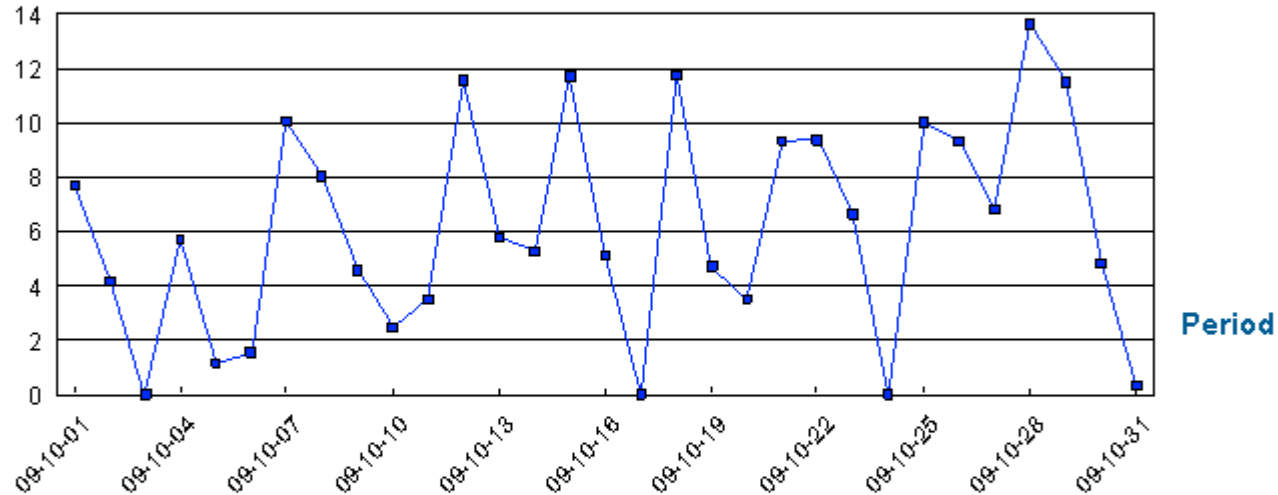
Period	System Usage (in Hours)
09-03	159,54
09-04	160,55
09-05	156,46
09-06	141,94
09-07	160,63
09-08	150,99
09-09	149,23
09-10	190,21

# Workstation - system usage

PACS System Usage Report - by host - drilled down on hsa1587

From: 1/10/2009 0:00 To: 31/10/2009 23:59

System Usage (in Hours) for Host = hsa1587



Total during period 190,21

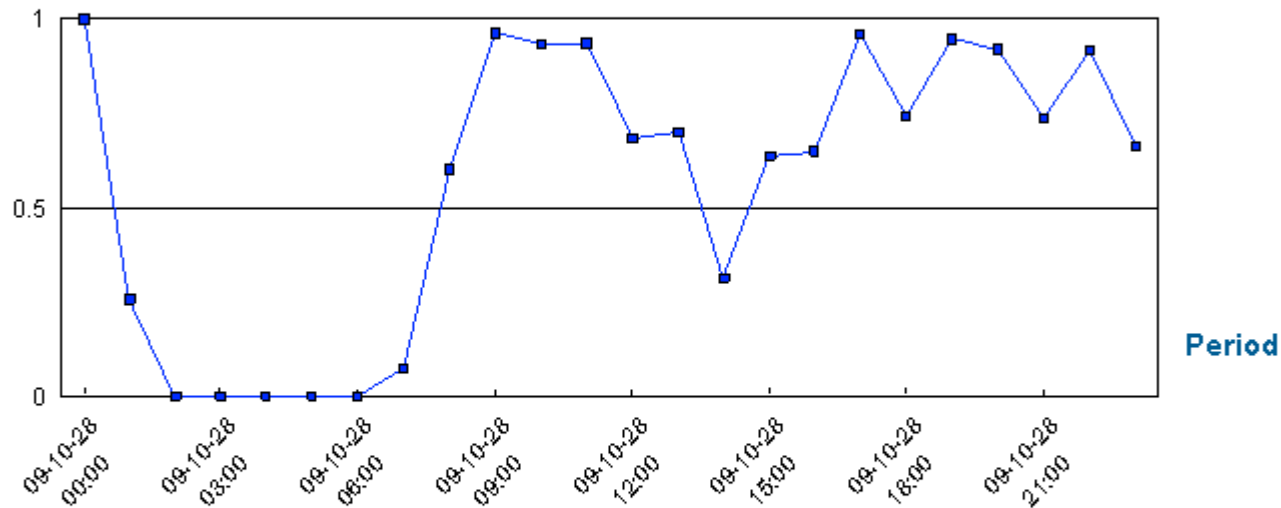
Period	System Usage (in Hours)
09-10-01	7,69
09-10-02	4,18
09-10-03	0,00
09-10-04	5,73
09-10-05	1,14
09-10-06	1,55

# Workstation - system usage

PACS System Usage Report - by host - drilled down on hsa1587

From: 28/10/2009 0:00 To: 28/10/2009 23:59

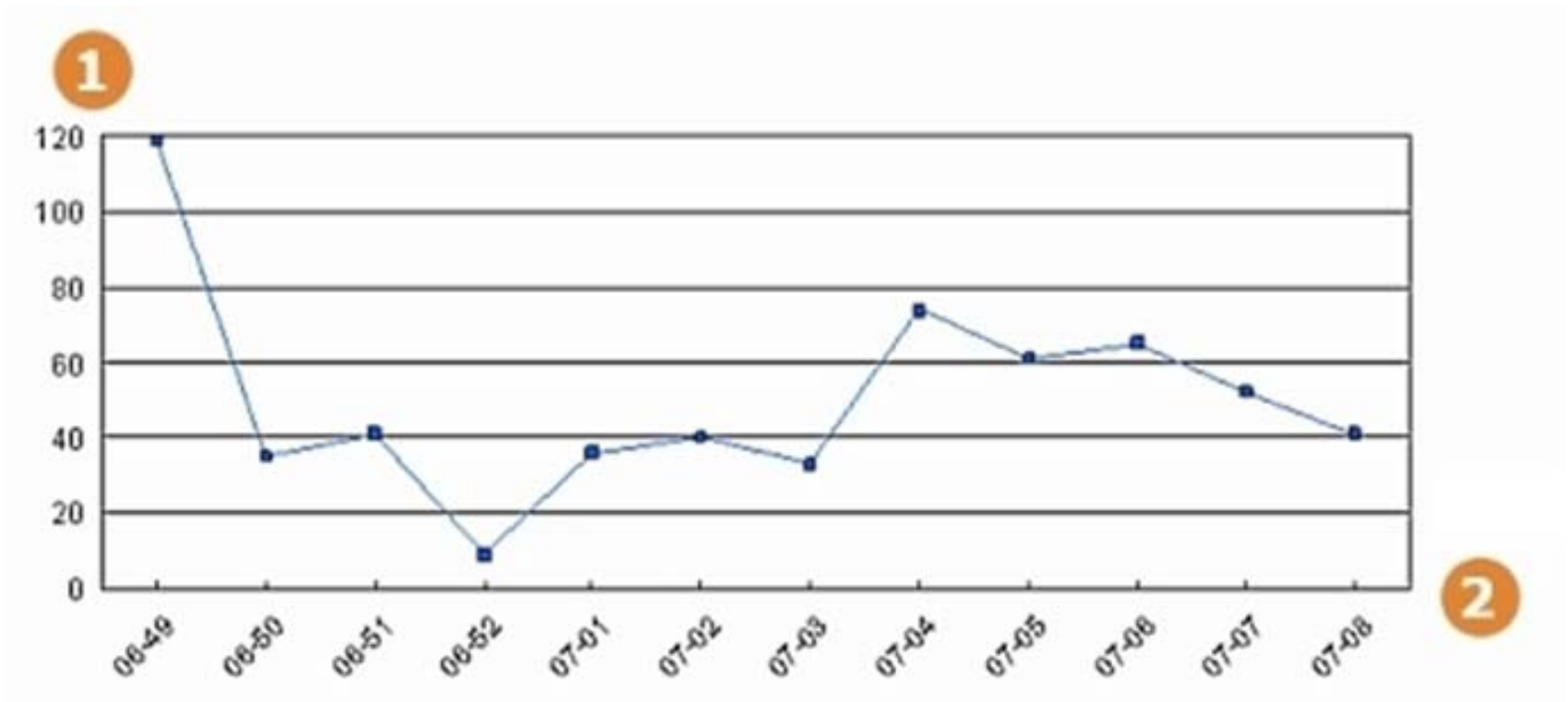
System Usage (in Hours) for Host = hsa1587



Total during period 13,63

Period	System Usage (in Hours)
09-10-28 00:00	1,00
09-10-28 01:00	0,26
09-10-28 02:00	0,00
09-10-28 03:00	0,00
09-10-28 04:00	0,00
09-10-28 05:00	0,00

# Deletions



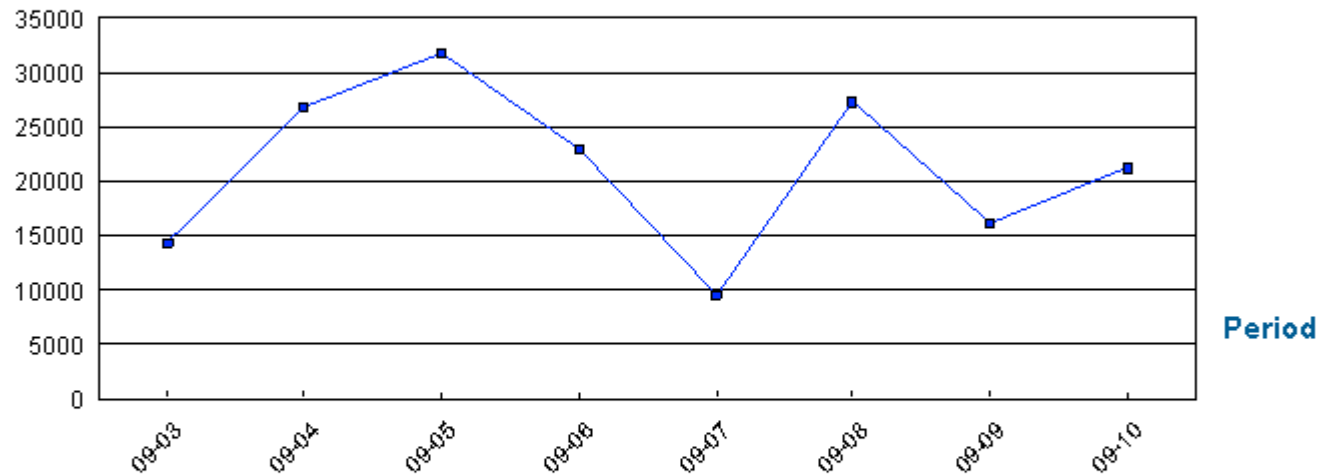
1. Number of deleted examinations,
2. Period.,

# Archive jobs

## PACS Exams Archived Report

From: 1/3/2009 0:00 To: 31/10/2009 23:59

Number of exams archived



Total during period 169.986,00

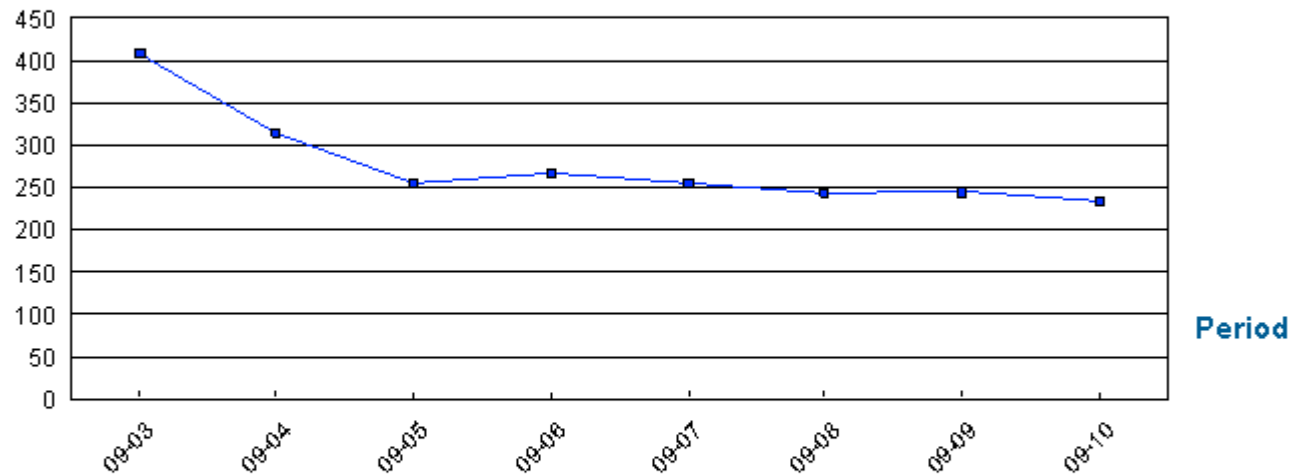
Period	Number of exams archived
09-03	14.333,00
09-04	26.842,00
09-05	31.788,00
09-06	22.912,00
09-07	9.550,00
09-08	27.221,00
09-09	16.000,00
09-10	21.333,00

# Number of CD's created

PACS CD Report

From: 1/3/2009 0:00 To: 31/10/2009 23:59

Number of CD's created



Total during period 2.217,00

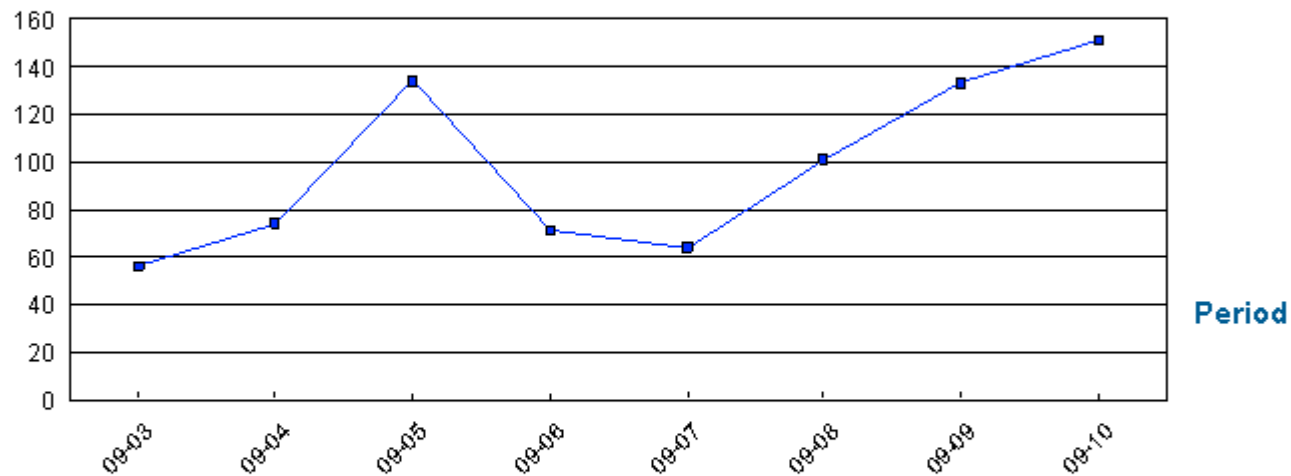
Period	Number of CD's created
09-03	408,00
09-04	314,00
09-05	254,00
09-06	266,00
09-07	254,00
09-08	244,00
09-09	244,00
09-10	234,00

# Number of printings

## PACS Print Report

From: 1/3/2009 0:00 To: 31/10/2009 23:59

### Number of printed films



Total during period 784,00

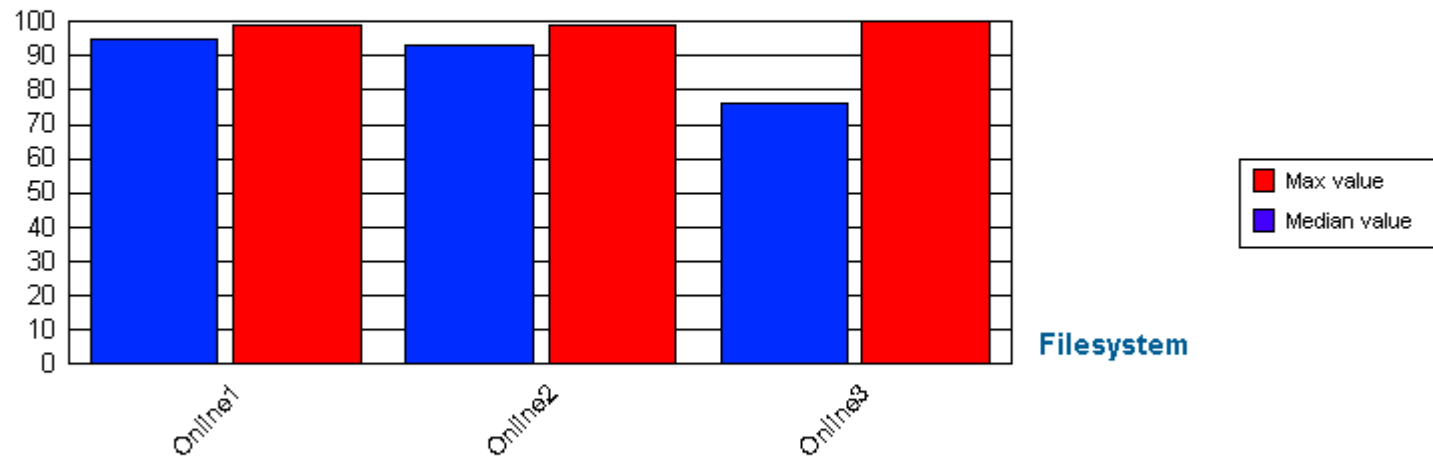
Period	Number of printed films
09-03	56,00
09-04	74,00
09-05	134,00
09-06	71,00
09-07	64,00

# File System usage

## PACS File System Usage Report

From: 1/3/2009 0:00 To: 31/10/2009 23:59

Used disk space (%)



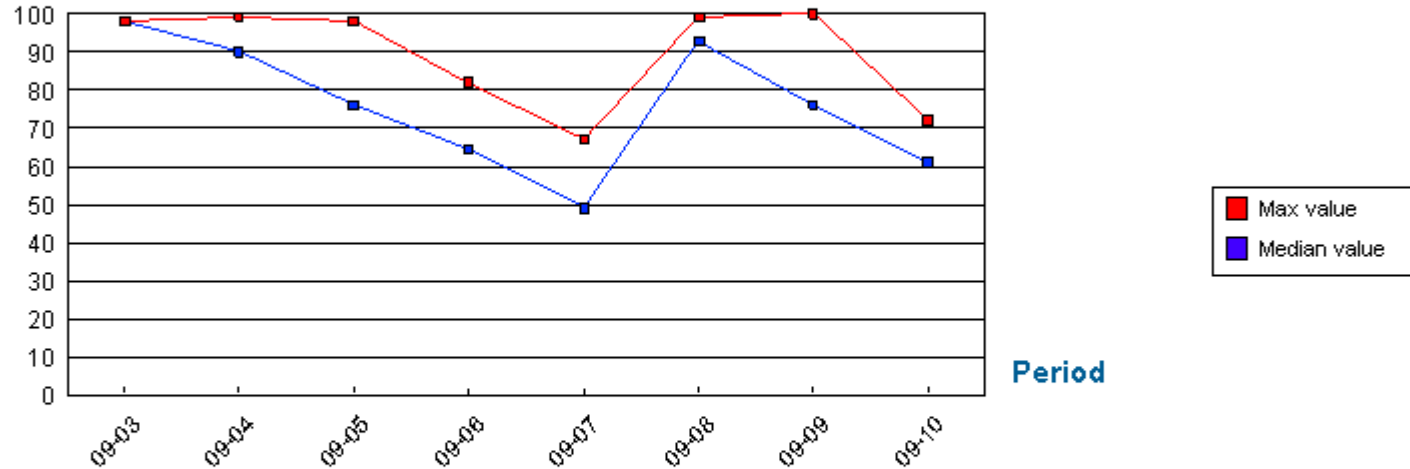
Filesystem	Max value	Median value
Online1	99,00	95,00
Online2	99,00	93,00
Online3	100,00	76,00

# File System usage

PACS File System Usage Report - drilled down on Online3

From: 1/3/2009 0:00 To: 31/10/2009 23:59

Used disk space (%) for Filesystem = Online3



Period	Max value	Median value
09-03	98,00	98,00
09-04	99,00	90,00
09-05	98,00	76,00
09-06	82,00	64,50
09-07	67,00	49,00
09-08	99,00	93,00
09-09	100,00	76,00
09-10	72,00	61,00

# Possible reports

- PACS Ad hoc Report
- PACS Archive Queue Report
- PACS CD Report - by host, by user
- PACS Concurrent Users Report – all, by license type
- PACS Events Reports
- PACS Exam Report
- PACS Exams Archived Report
- PACS Exams Retrieved Report
- PACS File System Usage Report
- PACS Images Report
- PACS Patient Report
- PACS Print Report - by host, by user
- PACS Reject Analysis Report
- PACS System Usage Report
- PACS Tele-rad Report - by host, by user
- PACS Turnover Time Report
- WISE Client Report

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**Thank you.**

**SECTRA**