

PACS

1

가 PACS
600 PACS
3 650 1997 1
PACS 639.5
1586 가 189 378
41 165
460 , 30 , CT 25 , MRI 8 , 20 543
17.2GB
14 93.7GB가 5:1
20:1 1 369.1GB
38.7GB가 30GB
가 531.5GB 5
1845.5GB가
: 600 540GB
1900GB

(Picture Archiving and Com-
municating System, PACS) 600
가

(Magneto-optical disk drive Juke box,
MOD) (Digital
Linear Tape drive juke box, DLT) 3
가 가 가 1997 1 8 650 12 12
639.5 1586
PACS
PACS 190 (159.6 , 30.4) 378
41 175 , 231
543
460 , 30 , CT 25 , MRI 8 ,
8 , 10
1999 9 20 2000 1 24 2 ,
705

PACS

600 10

17.2GB (Table 1)

CR 2.6:1

×17 inch 가 3500 , 4300 가 14

2 byte 30 6.7GB (Table 2).

MB 가 8×10 inch 10MB ,

34.7MB 가 ,

CT 가 512 2 “ ”

512 KB 14 , 93.7GB

가 , 14 가

CT가 21.0MB 가

MRI 가

100 KB 512 KB , 33MB 가

512 Byte 1byte 가 “ ” , 12

256KB

2.9MB , 1.2MB

1000×1000 가 CT, MR, 5:1, CR 20:1,

2 byte 2 MB 10 10:1

20 MB 2 MB 1.0GB, 1 369.1GB

75MB 159.6 , 1

5.1 MB

Prefetch prefetch

가

“ prefetch ” “

가

< >

prefetch =

× 1 × 0.8

Table 1. Daily Image Data Size(MB) in PACS Hospital with 600 beds

	Image size(MB)	Study size(MB)	Daily study number	Daily data size(MB)
Fluoro	2	20	10	200.0
Angio	2	75	2	150.0
US	0.3	2.9	30	86.7
CT	0.5	21.2	25	1000
MR		33.0	8	264.0
RI		1.2	8	9.6
CR		34.7	460	15976.4
Total			543	17213.5

Table 2. Daily Image Data Size after Lossless and Lossy Compression

	Original size(MB)	Lossless compression rate	Data size after lossless compression(MB)	Lossy compression rate	Data size after lossy compression(MB)
Fluoro	200.0	2:1	100.0	10:1	20.0
Angio	150.1	2:1	75.0	10:1	15.0
US	86.7	2:1	43.4	5:1	17.3
CT	526.7	2:1	263.4	5:1	105.3
MR	264.0	2:1	132	5:1	52.8
RI	9.6	2:1	4.8	10:1	1.0
CR	15976.4	2.6:1	6074.7	20:1	798.8
Total	17213.5		6693.2		1011.2

0.65GB 가 2 4K CR 20:1
38.7GB (1-7).
8 3 3
650 1500 (8-10). 2
20MB 30GB 1
531.5GB가 5 PACS
“ ” , 가 가
가 1845.5GB 가
MOD DLT
(Network attached server)
PACS 가 1
가 가 가
가 가 1
가 가
MOD DLT
가
2:1 - 3:1 30 MB CT
2-3 가
1-2 가 가
PACS 20:1 CR prefetch
(1-7).
PACS 1
CR 4K “ ”
“ ” 1
가 5 5
PACS PC 5
(1600×1200, true color) 4K (,) , 5 1
10:1, 20:1, 40:1 prefetch 4/5
5 (3 , 2) 4
20:1 , 40:1 Prefetch 가 2
가 (1)
600 PACS

- 540GB 가 , 1.9TB
5 가 MOD DLT 가 .
1. , , .PACS PC
PACS 1998;4:119-122
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PACS 1998;4:91-99

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Determination of the Size of an Imaging Data Storage Device at a Full PACS Hospital¹

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Medical Image Research Center, Inje University

Purpose : To determine the appropriate size of a short and long-term storage device, bearing in mind the design factors involved and the installation costs.

Materials and Methods : The number of radiologic studies quoted is the number of these undertaken during a one-year period at a university hospital with 650 beds, and reflects the actual number of each type of examination performed at a full PACS hospital . The average daily number of outpatients was 1,586, while that of inpatients was 639.5. The numbers of radiologic studies performed were as follows: 378 among 189 outpatients, and 165 among 41 inpatients. The average daily number of examinations was 543, comprising 460 CR, 30 ultrasonograms, 25 CT, 8 MRI, and 20 others.

Results : The total amount of digital images was 17.4 GB Per day, while the amount of short-term data with lossless compression was 6.7 GB Per day. During 14 days short-term storage, the amount of image data was 93.7 GB in disk array. The amount of data stored mid term (1 year), with lossy compression, was 369.1 GB. The amount of data stored in the form of long-term cache and educational images was 38.7 GB and 30 GB, respectively. The total size of disk array was 531.5 GB. A device suitable for the long-term storage of images, for at least five years, requires a capacity of 1845.5 GB.

Conclusion: At a full PACS hospital with 600 beds, the minimum disk space required for the short-and mid-term storage of image data in disk array is 540 GB. The capacity required for long term storage(at least five years) is 1900 GB.

Index words : Computers
Radiography, digital
Picture archiving and communication system

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: FAX : 529-7113
 E-mail : office@radiology.or.kr

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2000 1.1

1.

(pictorial essay),
(multiple or duplicate publication) Uniform Requirements for Manuscripts Submitted to Biomedical Journals (Ann Intern Med 1997;126:36-47)
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2.

1997

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1)

(International System of Units, SI)
(JAMA 1986;255:2329-2339).

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:kkrs @chollan.net

4.

(peer review)

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5.

1)

: 600 , 200

2)

3)

4)

(Table)

5)

6.

(checklist)

1)

• (acknowledgments), (Table),
A4 (21 × 30cm) 1
3cm

2)

• 가 2
(corresponding author)
FAX E-mail
•
3)
• 1 , 2
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(Purpose) : 1-2

(Materials and Methods) : 가

(bias) 가

(Results) : 가

(Conclusion) :

1-2

• (Radiology) 5

4) ()

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• “ (,) ”

• Index Medicus

• 6 3 “ ” “et al.” , 7

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• 40 , 10 7.

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1. , , , , , , 3.5

1997;37:25-28

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京 京

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In Livraghi T, Makuuchi M, Buscarini L. Diagnosis and treatment of hepatocellular carcinoma. London : : 150 , 400

Greenwich Medical Media, 1997:201-219

5) (Table)

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6) (Figure)

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• 5×7 (13×18cm)

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• 2 (: Fig. 1A, Fig. 1B).

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• 가 가 (line drawing)

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• 7)

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• 7.

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1.

2. : 150 , 400

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3.

10 , 30

4.