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Paper No. 11

Handling of pictures in the prepress network

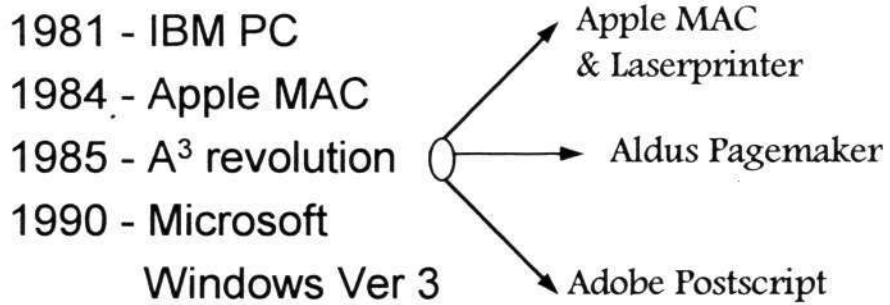
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Looking back

- In early eighties, prepress systems were based on proprietary hardware / software
 - Mainframes and minicomputers with dumb terminals running proprietary software was the norm
- Advent of Desk Top Publishing in 1984 changed the rules of the game

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Desktop chronology



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Prepress systems in the nineties
are based on Standard platforms
and Computer Networks

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Standard hardware

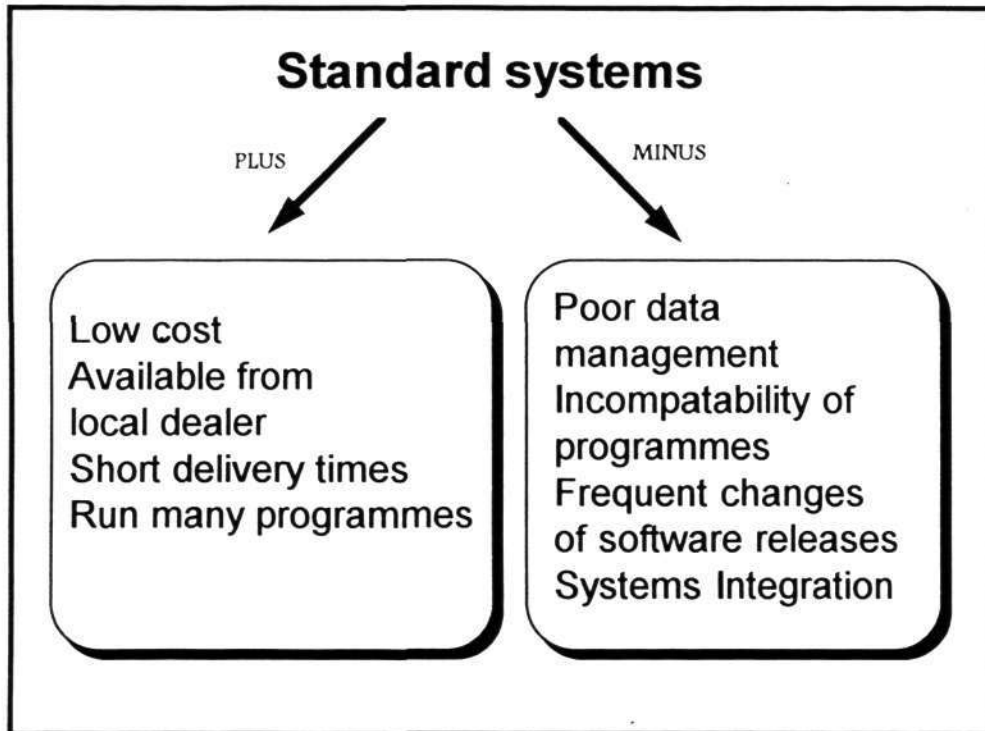
- IBM PC and compatibles
 - 8088, 80286, 80386, 80486, Pentium (P5) and now P6
- Apple Macintoshes
 - Mac classic, Mac II, Quadra and now Power MAC
- Unix workstations
 - SUN, Hewet Packard, Silicon Graphics

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Standard software

- Shrink wrapped, available of the shelf
- Word processing - Wordstar, Word Perfect, MS Word, Ami Pro
- Drawing & Illustration - Freehand, Illustrator
- Photo processing - Photoshop, Live Picture
- Page makeup - Quark Xpress, Pagemaker

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Computer Networks

When two or more computers are connected together to share data and peripherals it becomes a network

LAN **Local Area Network - in a limited geographic area**

WAN **Wide Area Network - over large geographic area**

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Dominant network technologies

HARDWARE

ARCNET

ETHERNET

TOKENRING

LOCALTALK

FDDI

SOFTWARE

NOVELL

WINDOWS NT

APPLE SHARE

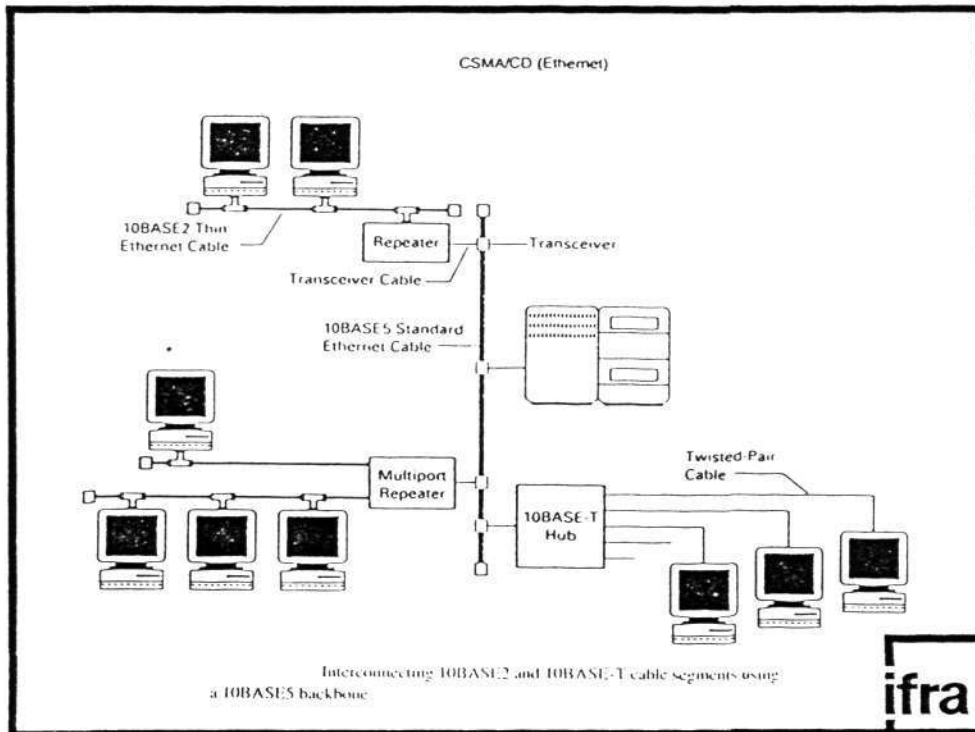
LAN MANAGER

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Ethernet

- Widely used in the prepress industry
- IEEE 802.3 standard
- Data rate of 10 Mb/s
- CSMA/CD access method
- 10Base5, 10Base2 and 10BaseT wiring schemes
- Limitations
 - limited bandwidth
 - poor performance under heavy load

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Handling of pictures in the prepress network

- digitized image sizes are large
- sending large files across the network creates , bottlenecks and affects other users
- What are the solutions available
 - OPI.
 - segmenting the network traffic
 - High speed networks

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OPI

- Open prepress interface
- Originally developed by Aldus
- creates a low resolution file of the high resolution image file. The low res image is used for page makeup. When the page is output the low res image is substituted by the high res image

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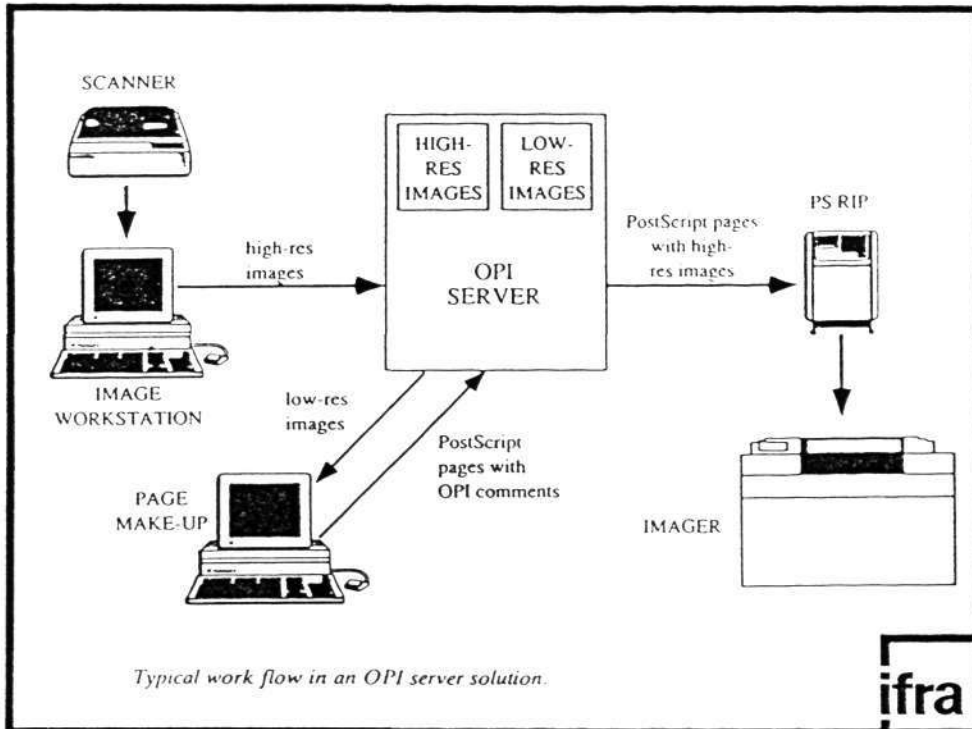
OPI servers

The opi server allows the preparation of different page elements independently integrating the elements during output

Output control, page spooling and print queue management are carried out by the server. Log reports for the incoming and outgoing files are produced. Network problems are reported. Database connections can be included

A special file with medium resolution can be produced for proofing

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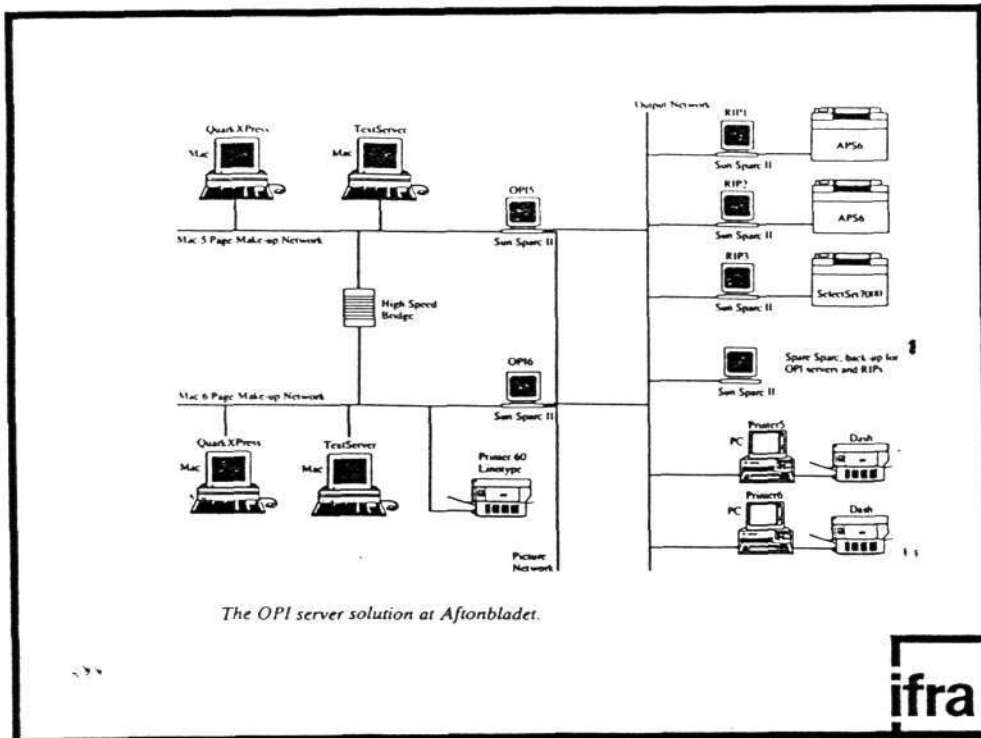
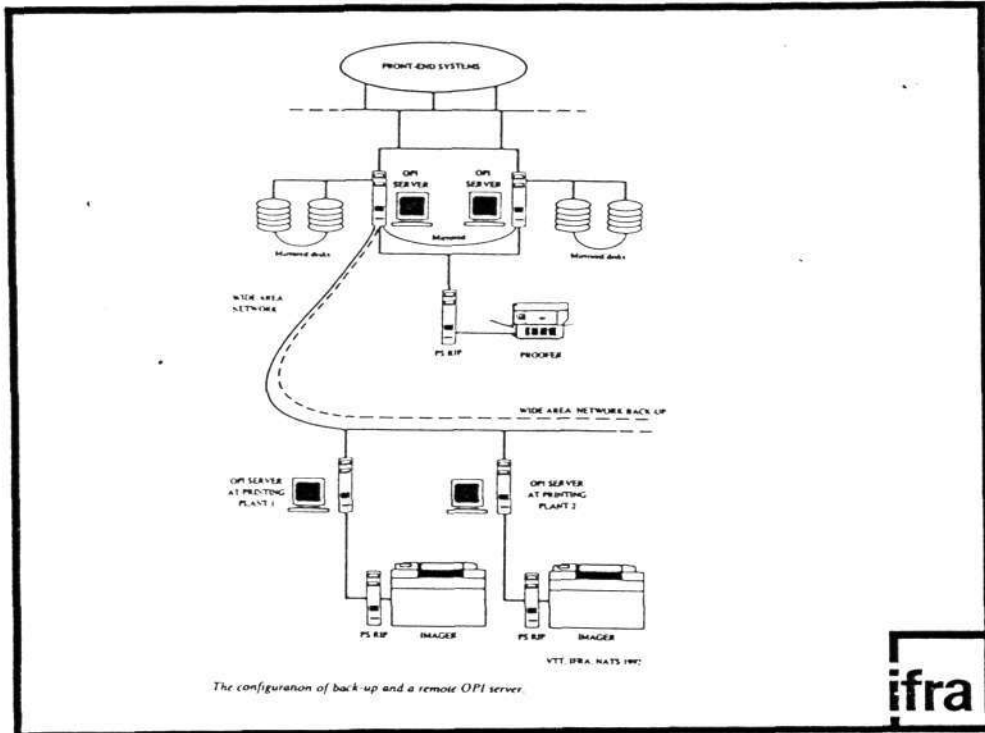
Remote OPI

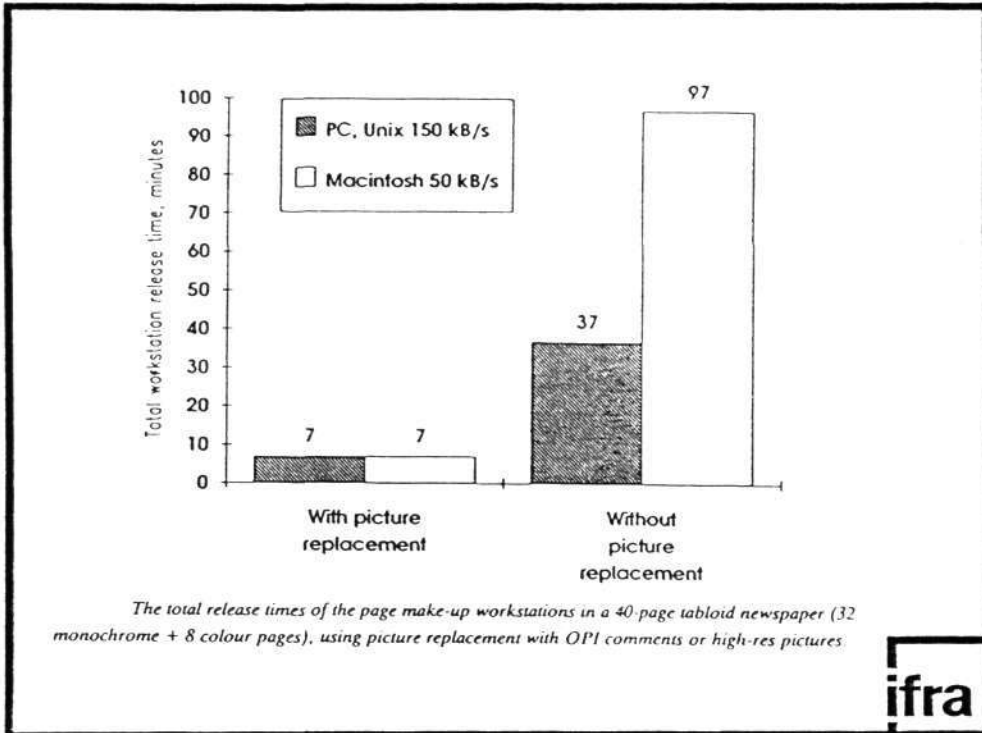
Most suppliers of servers support remote OPI

One OPI server is located in the remote plant. Files are sent as Postscript files

Postscript files are output automatically and cannot be altered

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Picture size	Release time for the workstation		
	OPI comments	Low-res picture (72 dpi, RGB)	High-res picture (300 dpi, CMYK)
5 x 10 cm - 50 kB/s (Mac) - 150 kB/s (PC, Unix)	0.03 s + 10 s	2.4 s + 10 s	56 s + 10 s
	0.01 s + 10 s	0.8 s + 10 s	17 s + 10 s
30 x 45 cm - 50 kB/s (Mac) - 150 kB/s (PC, Unix)	0.03 s + 10 s	66 s + 10 s	25 min 20 s + 10 s
	0.01 s + 10 s	22 s + 10 s	8 min 30 s + 10 s
Picture size	Amounts of data (used in computing the above release times)		
	OPI comments (1500 characters)	Low res picture (72 dpi, RGB)	High res picture (300 dpi, CMYK)
5 x 10 cm	0.0015 MB	0.12 MB	2.8 MB
30 x 45 cm	0.0015 MB	3.3 MB	76 MB

Table 1. The theoretical release time of the workstation when transmitting OPI comments, a low-res colour picture, or a high-res colour picture. 10 seconds is the time needed by the workstation to establish a network connection.



High speed networking

- High speed ethernet - two competing standards
 - Fast Ethernet
 - 100VG-AnyLAN
- FDDI
- ATM

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Fast Ethernet

also called 100 BaseT
supported by 3Com, Synoptics, Intel etc
offers 100 Mbps speed
backward compatability
supports category 5 cabling

100VGAnyLAN

proposed by HP and IBM
can use existing cabling infrastructure
supports demand priority

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FDDI

Fibre Data Distributed Interface

Data rate of 100 Mbps

Uses token passing scheme

Quite expensive

Mostly used as backbone

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ATM - Asynchronous transfer mode

Implements a type of fast packet switching, where data is carried in fixed length cells of 53 octets

Can be used for both LANS and WANS

Potential to become an universal networking protocol

Support high speeds like 155 and 622Mbps

Technology not yet mature

Standards being developed

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