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# United States Patent [19]

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**Shaw et al.**

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[54] <b>DEFERRED PRINTING</b>	5,604,843	2/1997	Shaw et al. ....	395/101
	5,625,757	4/1997	Kageyama et al. ....	395/113
[75] Inventors: <b>Lin F. Shaw; Chia-Chi Teng; Kenneth W. Sykes; Raymond E. Endres</b> , all of Redmond, Wash.	5,644,682	7/1997	Weinberger et al. ....	395/101
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[73] Assignee: <b>Microsoft Corporation</b> , Redmond, Wash.	5,859,956	1/1999	Sugiyama et al. ....	395/112
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### Related U.S. Application Data

- [63] Continuation of application No. 08/960,722, Oct. 29, 1997, Pat. No. 5,881,213, which is a continuation of application No. 08/643,884, May 7, 1996, abandoned, which is a continuation of application No. 08/318,079, Oct. 5, 1994, abandoned.
- [51] **Int. Cl.<sup>6</sup>** ..... **G06F 15/00**  
 [52] **U.S. Cl.** ..... **395/114; 395/113**  
 [58] **Field of Search** ..... 395/114, 115, 395/117, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 116; 345/326, 346, 356

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### [57] ABSTRACT

Facilities are provided within an operating system for supporting deferred printing of print jobs. The process of spooling a print job and the process of despooling the print job are decoupled, such that a printer need not be available at the time of spooling. Print jobs are spooled in a device-independent format, such as the enhanced metafile format. The print jobs may be spooled without a printer driver being installed for a target printer or without the target printer being connected to the system. Later, when the target printer becomes available, the print job is despoiled and printed. A configuration database holds different printer configurations that list available printers in different environments. For example, a user may have a different configuration for printers available when he uses his computer at home, at work and on the road, respectively. The configurations help the user to identify the printers that are currently available and those that are available in other settings. When a currently active machine configuration changes, the system checks for spooled jobs on printers that were previously unavailable and are now available and asks the user if the user wishes to start printing these spooled print jobs.

**11 Claims, 8 Drawing Sheets**

























