



IBM Software

# IBM IMS Information Management **IMS tools for tuning, diagnosis, and maintenance**

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A horizontal decorative bar spanning the width of the slide, featuring a series of colorful squares and icons. From left to right, it includes a green square, a yellow square, a red square, a purple square, a cyan square, a square with a white 'X' on a green background, a square with a blue arrow pointing up and right, a square with a grid of dots, a square with a blue and green striped pattern, and several green squares of varying shades.

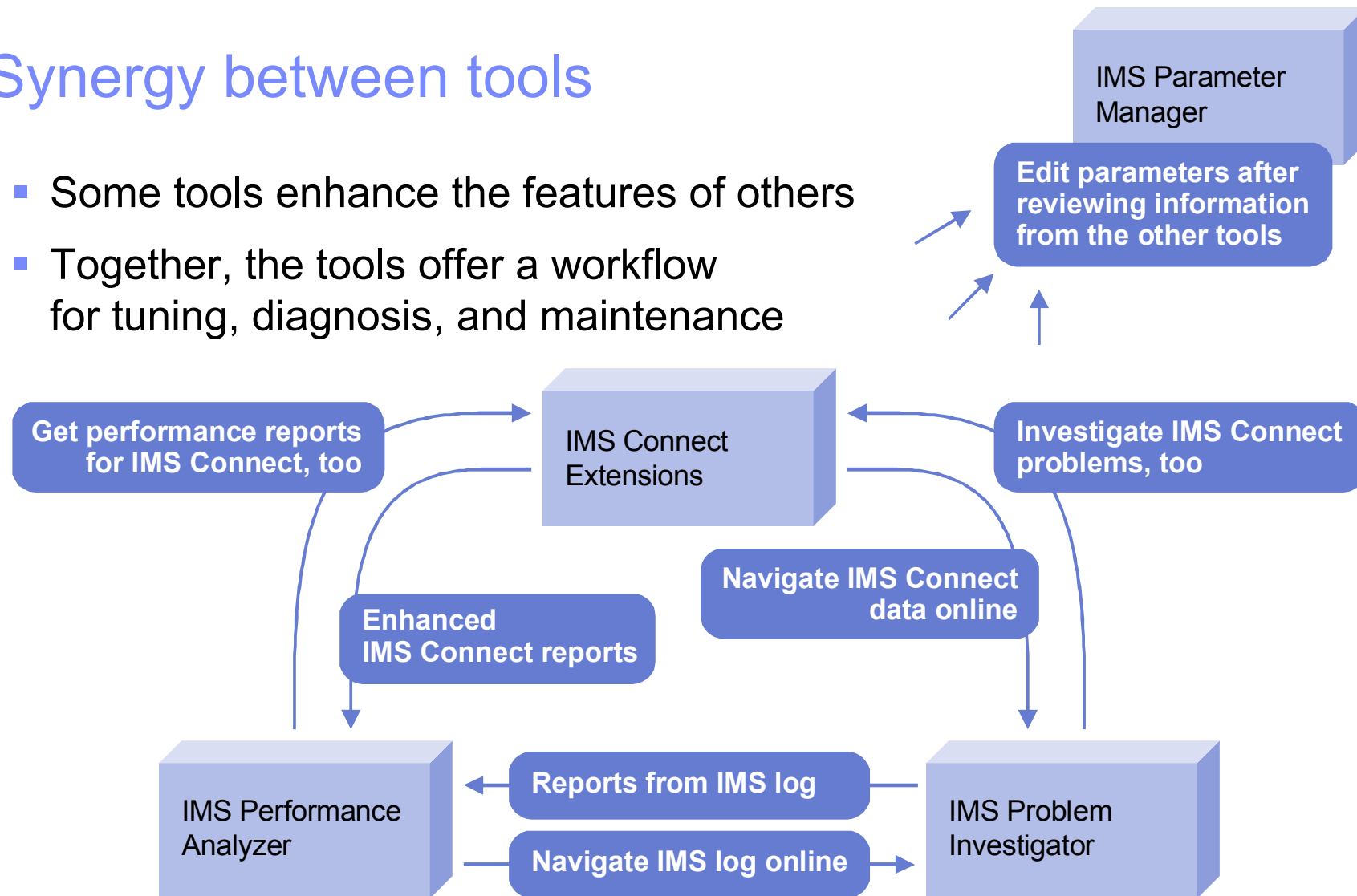
**ON DEMAND BUSINESS™**

# Agenda

- **IMS Connect Extensions**
  - ▶ Tune IMS Connect — optimize the speed of Web applications that use IMS
- **IMS Performance Analyzer**
  - ▶ Tune IMS — get the best performance from your IMS systems
  - ▶ Report IMS Connect events recorded by IMS Connect Extensions
- **IMS Problem Investigator**
  - ▶ Quickly diagnose and solve IMS problems
- **IMS Parameter Manager** ★ *New (September 2004)*
  - ▶ Maintain IMS parameter members quickly and reliably

# Synergy between tools

- Some tools enhance the features of others
- Together, the tools offer a workflow for tuning, diagnosis, and maintenance

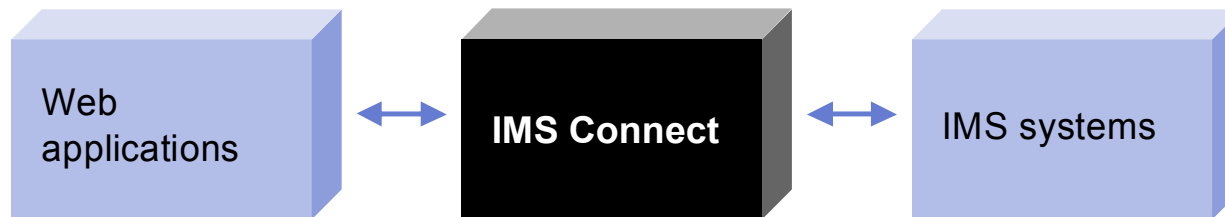


## Who uses these tools?

- These are all technical tools aimed at **IMS specialists**:
  - ▶ **IMS Database Administrators (DBAs)**
  - ▶ **IMS System Programmers**
- **IMS application developers** use IMS Problem Investigator:
  - ▶ Simpler to use than the File Select and Formatting Print utility (DFSERA10) supplied with IMS
  - ▶ Easy to tailor for diagnosis and verification during development
- Some IMS Performance Analyzer reports are aimed at **managers**, to verify service levels and predict trends:
  - ▶ See at a glance how IMS performed yesterday: anticipate user support issues, and assign staff to work on problems

## IMS Connect Extensions

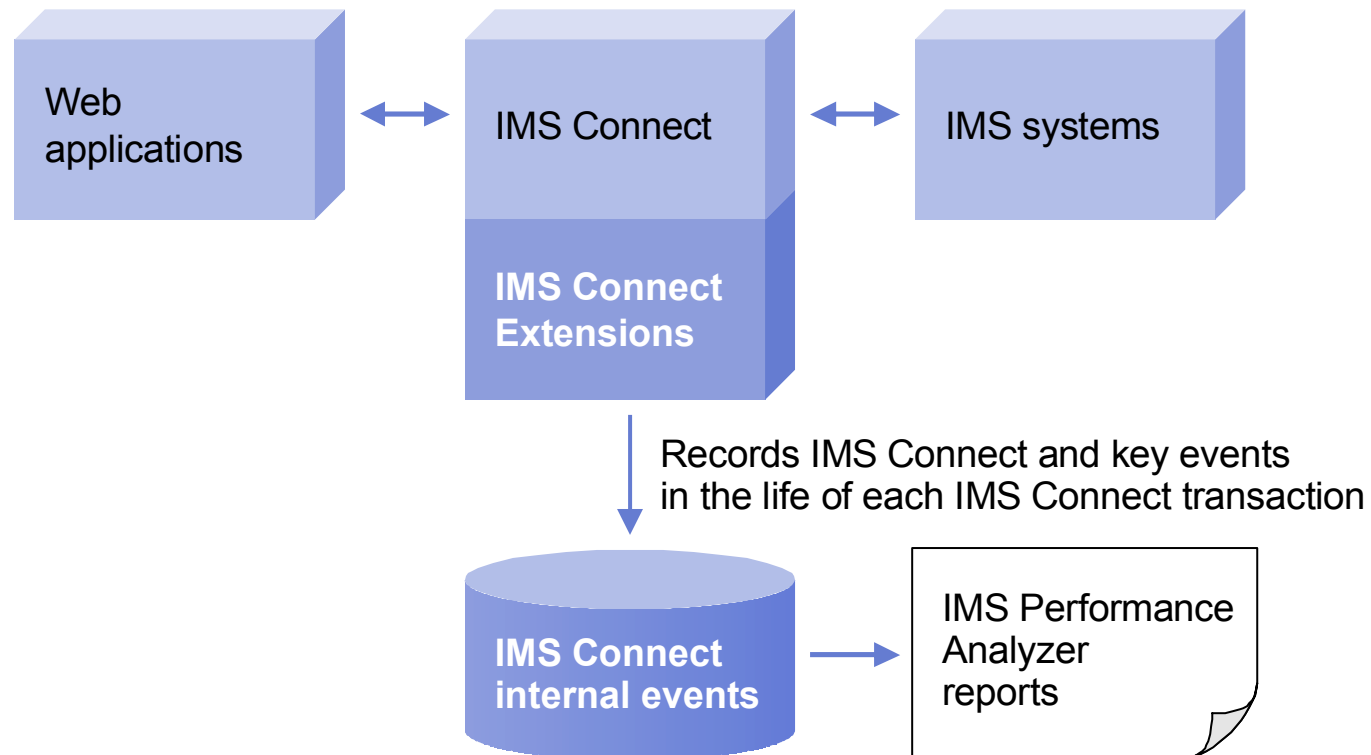
- **Problem:** IMS Connect does not log performance data



- Of the components that contribute to overall transaction response time, only IMS Connect does not provide this data
  - ▶ Difficult to rule out IMS Connect as a cause of slow response times
  - ▶ Difficult to diagnose and fix problems

## IMS Connect Extensions

- **Solution:** provide the same high level of instrumentation and performance reporting as other components



## Who needs it?

- If you have IMS Connect, you need IMS Connect Extensions!
- Without IMS Connect Extensions, you cannot view IMS Connect internal events. For example, no way to:
  - ▶ Measure performance or throughput
  - ▶ See which client applications are hanging
  - ▶ View the details of individual remote clients

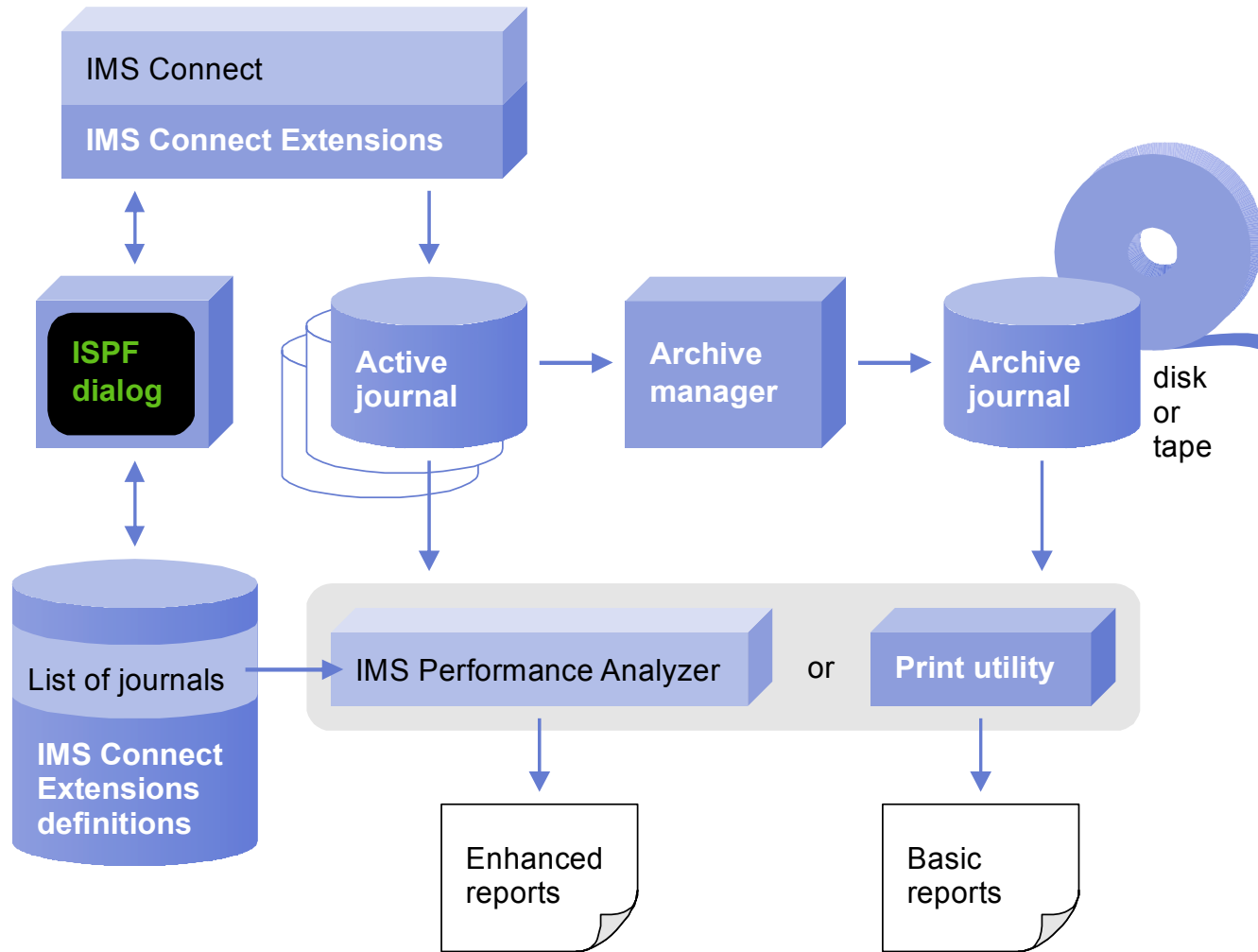
## Key features

- Primary feature: **Event collection**
  - ▶ Report on internal IMS Connect events (such as requests from a Web application): easier to determine transaction transit time and diagnose problems
  - ▶ Combine with IMS Performance Analyzer for enhanced reports: easier to spot performance bottlenecks
- Other (known collectively as “advanced function”):
  - ▶ Workload management: routing, balancing, pacing
  - ▶ Status monitor
  - ▶ Security
  - ▶ User exits



## IMS Connect Extensions

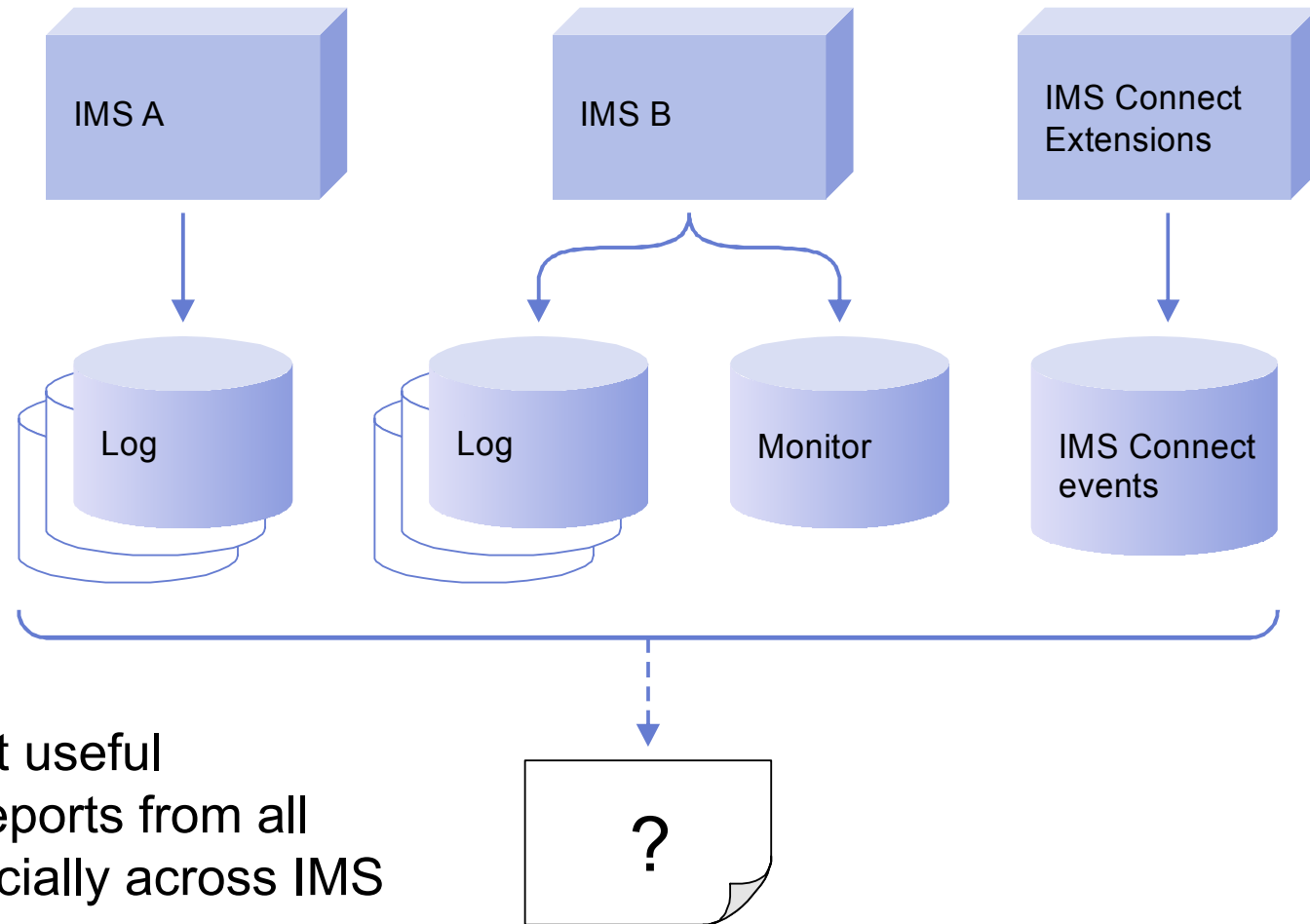
# Event collection and reporting



## Advanced function

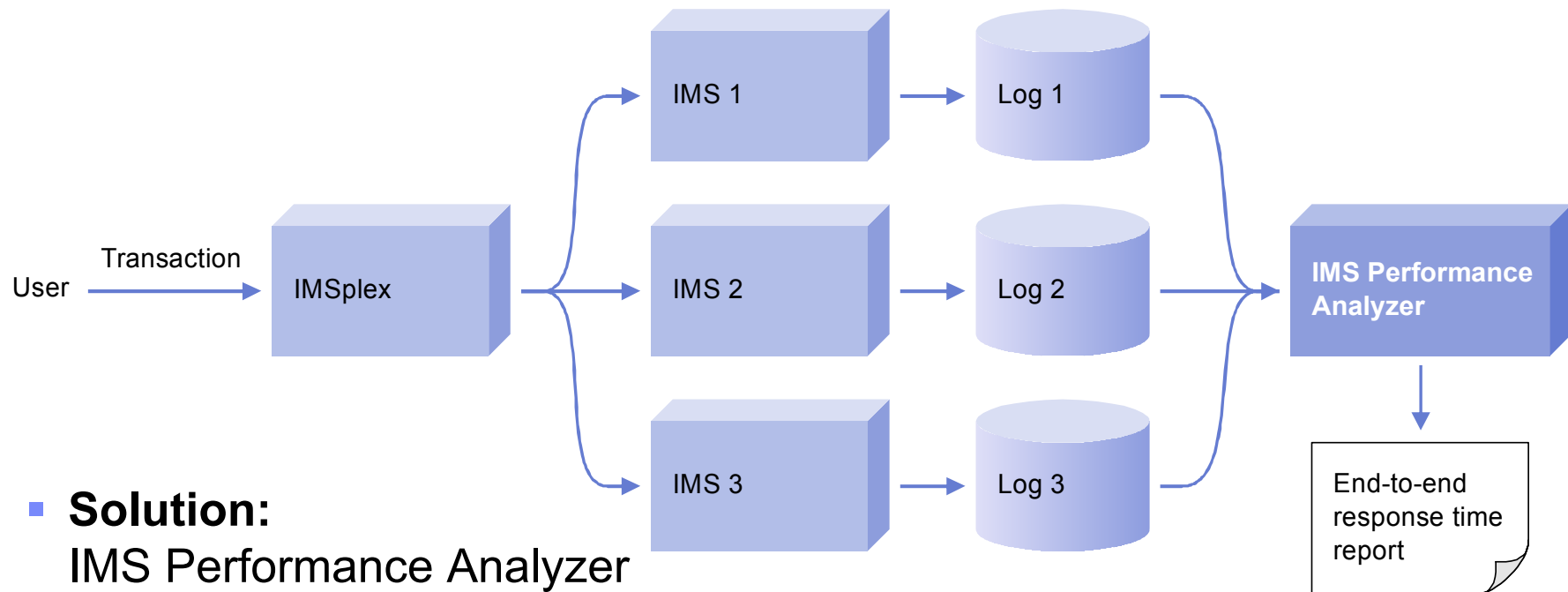
- **Transaction routing** redirects incoming messages to any available candidate datastore, in case the specified datastore is down
- **Workload balancing** redirects transactions based on relative capacity of datastores
- **Transaction pacing** issues warning, or rejects selected messages, if the number of incoming messages exceeds user-defined thresholds
- **Security** reduces repeated calls by caching ACEE structures; rejects messages if RACF returns “USERID not authorized”
- **Status monitor** offers a flexible view of statistics
- **User exits:** load, reload, logically delete, disable, or re-enable without restarting IMS Connect

# IMS Performance Analyzer



- **Problem:**  
how do you get useful performance reports from all this data, especially across IMS systems?

# IMS Performance Analyzer



- **Solution:**  
IMS Performance Analyzer merges data across multiple IMS systems

## IMS Performance Analyzer

# Who needs it?

- IMS users who need to:
  - ▶ Tune the performance of their IMS systems
  - ▶ Produce reports to assist capacity planning
  - ▶ Produce reports to verify service levels
- Anyone who uses IMS for production applications
- Anyone who has IMS Connect Extensions

## IMS Performance Analyzer

# Key features

- Provides information on IMS system performance for:
  - ▶ Tuning
  - ▶ Capacity planning
  - ▶ Management reporting (for example, to confirm service levels)
- Comprehensive reporting of IMS log, monitor, and IMS Connect data via ISPF dialog or batch commands
- Support for IMS version 7, 8, and 9
  - ▶ Shared queue support: merges logs to produce end-to-end transaction response times
  - ▶ Fast Path reporting for log and monitor
- Support for IMS Connect Extensions

## Key features continued

- Non-intrusive log reporting
- Replaces IMS reporting utilities
- DBRC log selection
  - Merge SYSPLEX logs
  - Find log data by date/time
- Easy to use, no initial set-up required
- Constantly growing and improving
  - Full exploitation support for new IMS releases
  - Responsive to user requirements and expectations
- Used by IBM for product development and customer support

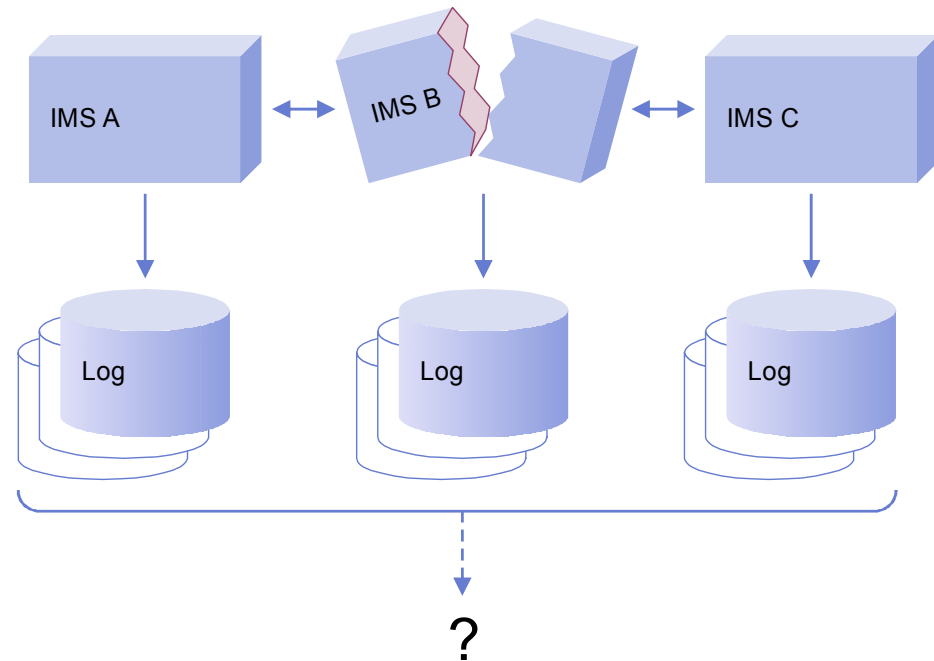
## Key features continued

- Daily monitoring
  - ▶ Dashboard
  - ▶ Transit response time reports
  - ▶ Management exception report
- Performance problem? Drill down with more reports!
  - ▶ Bad response time? Transit reports
  - ▶ IMS resource constraint? Resource Utilization reports
- Long-term capacity planning and service levels
  - ▶ Transaction History File – daily transaction performance
  - ▶ Load into DB2 to build a Performance Database
  - ▶ Report on host or workstation using your favorite SQL reporting tool



## IMS Problem Investigator

- **Problem:**  
how do you leverage the vast amount of data recorded in the IMS log? How can you see the entire picture in a shared IMS system?

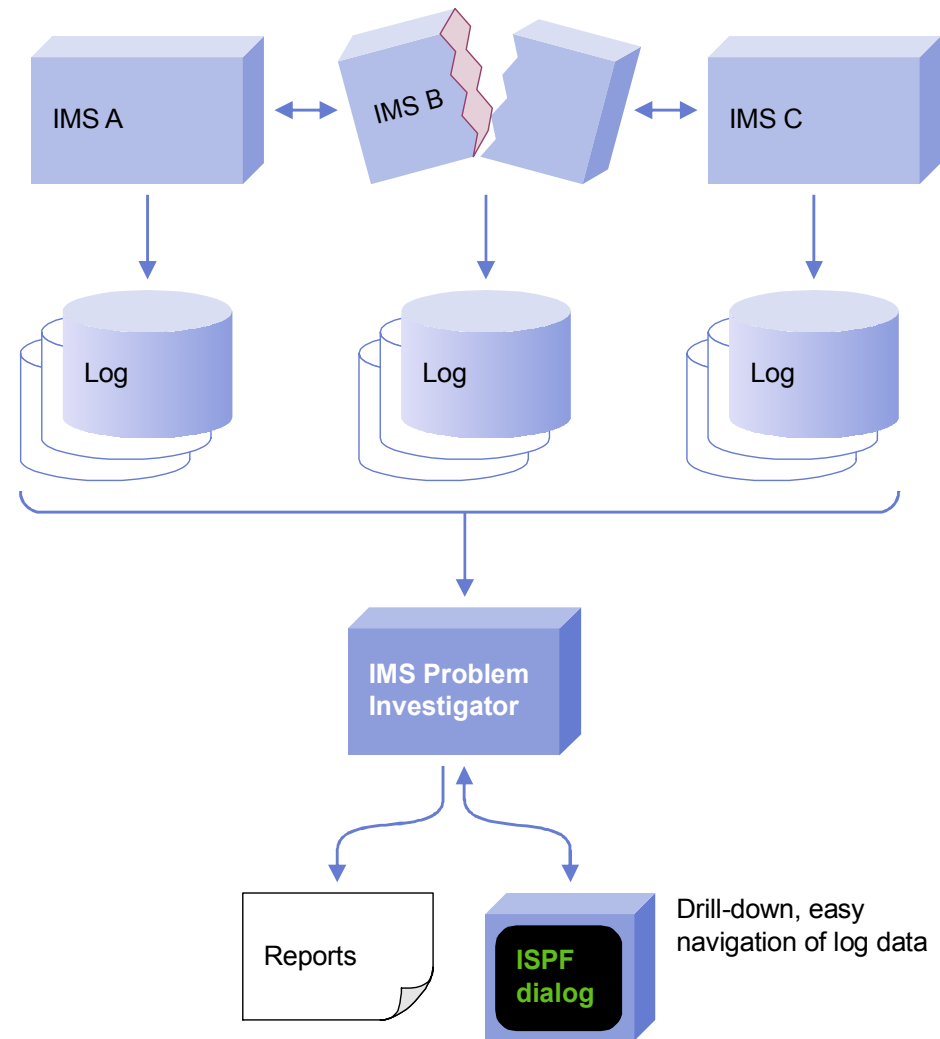


## IMS Problem Investigator

### ■ **Solution:**

State-of-the-art tool enables customers to interrogate IMS logs using an ISPF dialog

- ▶ Powerful data selection techniques
- ▶ Data viewing and formatting
- ▶ Generic data representation
- ▶ Related record sets



## IMS Problem Investigator

# Who needs it?

- **IMS users** who need to maximize the availability of their systems, quickly diagnose problems, and answer questions about IMS behavior
  - ▶ Which USERIDs had security failures?
  - ▶ Which transactions are being called by other transactions?
  - ▶ Follow a trail of associated event/log records, tracing IMS Connect messages through IMS Connect and IMS
- This includes **anyone who uses IMS for production applications**
- **Application developers** with limited knowledge of IMS logs can use IMS Problem Investigator to quickly get to the information they need to develop and debug their applications

## Key features

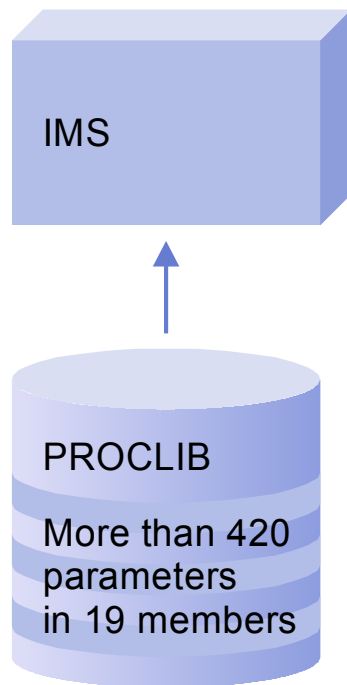
- **ISPF dialog** offers easy navigation of IMS log data, with formatted or ISPF Browse presentation. You can drill-down to display information at the field level.
- **DBRC log selection**
  - ▶ Automatically selects the required log files for the specified reporting period
  - ▶ **IMS Sysplex** support merges log data from participating IMS systems for a single view
- **Filtering criteria** let you select records by field name, avoiding field-offset calculations; conditional logic adds flexibility by allowing record selection using complex criteria
- Batch process
  - ▶ **Batch reporting** offers personalized formatted reports
  - ▶ **Extract function** produces a reduced log file for easier online analysis
  - ▶ **Record forms** let you design a custom report layout, containing only the information you require

## Key features continued

- Gets the information you need quickly, using an ISPF dialog that allows a drill-down approach to problem solving — not just dumps of log records
- Eliminates the need to have assembler DSECTs for the log records, and continually switch between log dumps and DSECTs
- Provides an insight into all IMS log record fields: from the bit settings of flag bytes to the text content of messages and database updates
- ISPF dialog makes log file navigation quick and easy
- Easy to use, minimal setup required
- Supports IMS versions 6, 7, and 8; IMS Connect Extensions

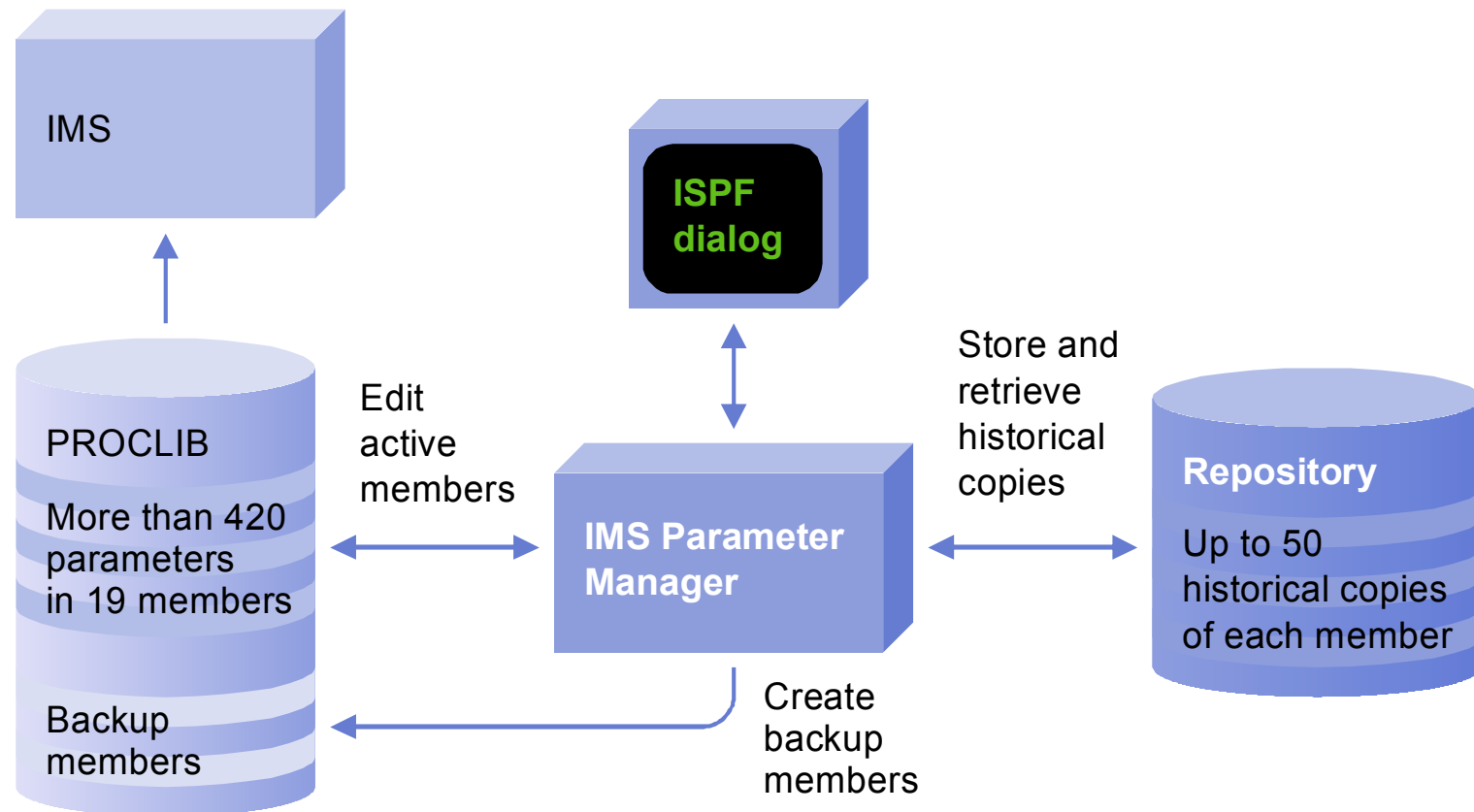
## IMS Parameter Manager

- **Problem:** how do you accurately edit all these parameters, keep a record of the edits, and back them out if necessary?



## IMS Parameter Manager

- **Solution:** ISPF dialog provides syntax checking, validation, and parameter descriptions; repository stores historical copies



## IMS Parameter Manager

# Who needs it?

- IMS users who need to keep a record of IMS parameter changes
  - ▶ For auditing
  - ▶ To back out changes
- IMS users migrating from one IMS release to another
- IMS users with limited detailed knowledge of IMS parameters: improved productivity



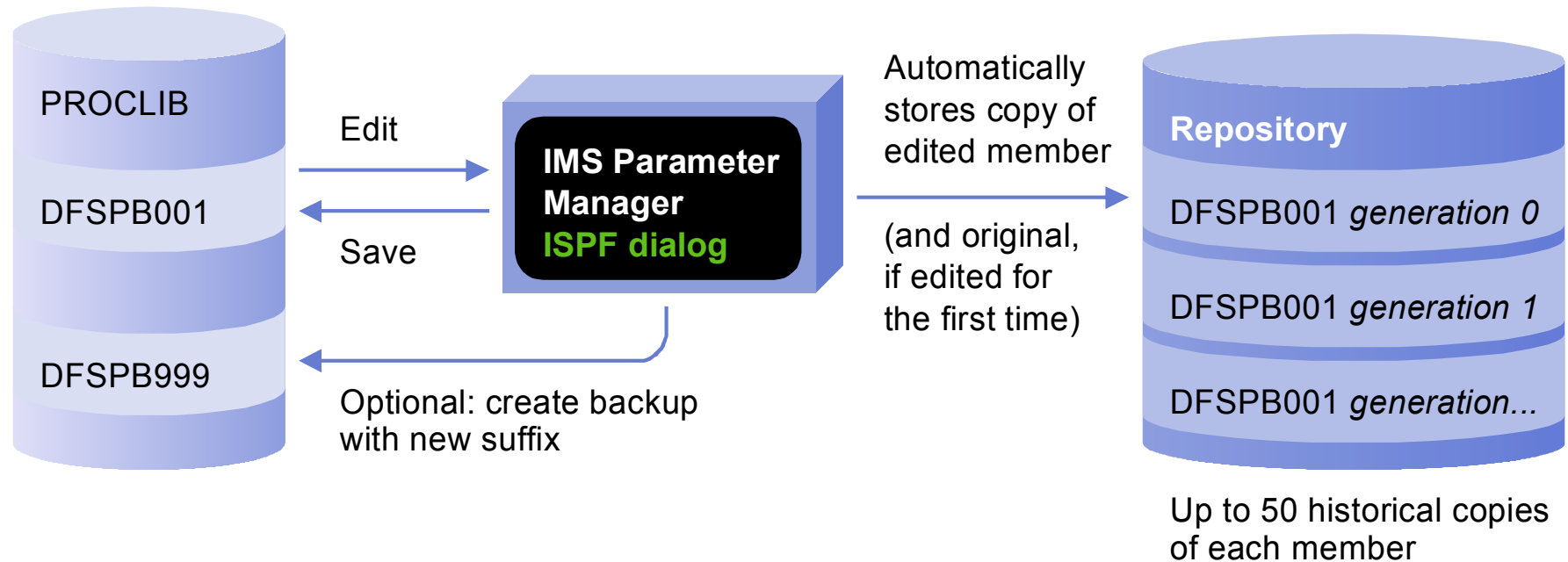
## IMS Parameter Manager

# Key features

- “Fill in the blanks” editing, with related parameters presented together (not just in a book in alphabetical order)
- Select field values from pop-up lists
- Extensive online help and prompts reduce the need to refer to the manuals
- Parameter syntax and value checking
- Validation of parameters: cross-member, IMS configurations, IMS versions (support for versions 7, 8, and 9)
- Cross-reference and view the parameter members used by each IMS system
- Automatic “backup” parameter member creation and change history
- Back out changes: restore from history or from backup
- Migrate parameters to a later IMS version

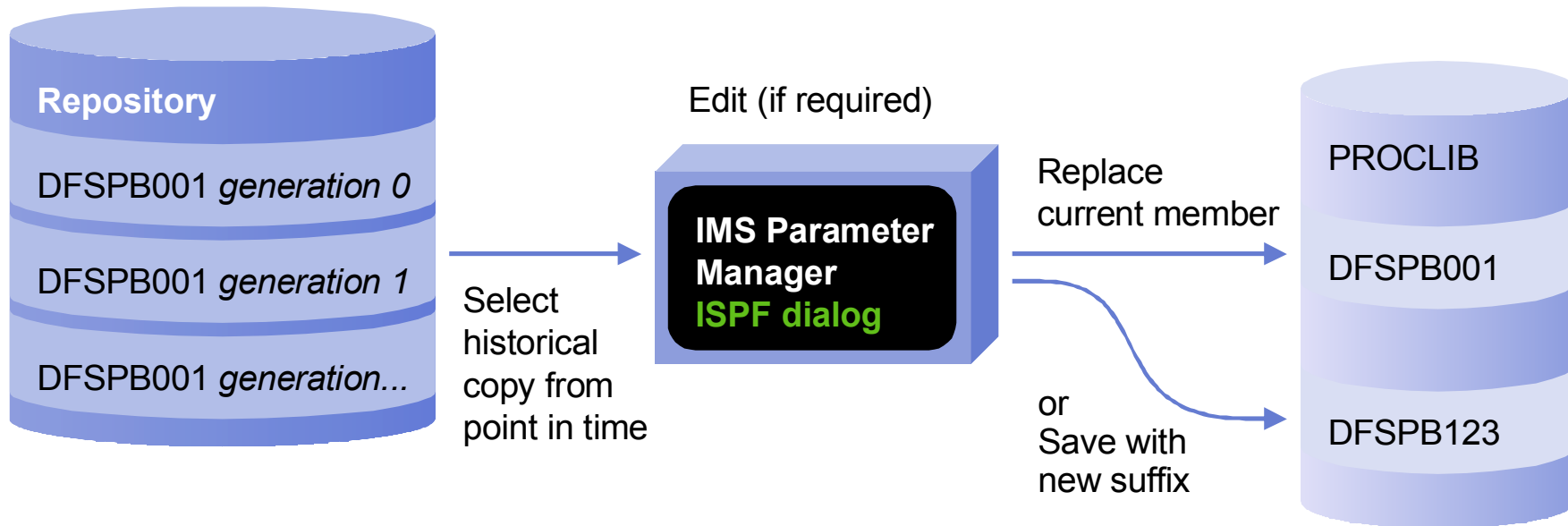
IMS Parameter Manager

# Editing a parameter member



### IMS Parameter Manager

# Backing out a change / reverting to an historical copy of a member



## IMS Parameter Manager

## Competitive products

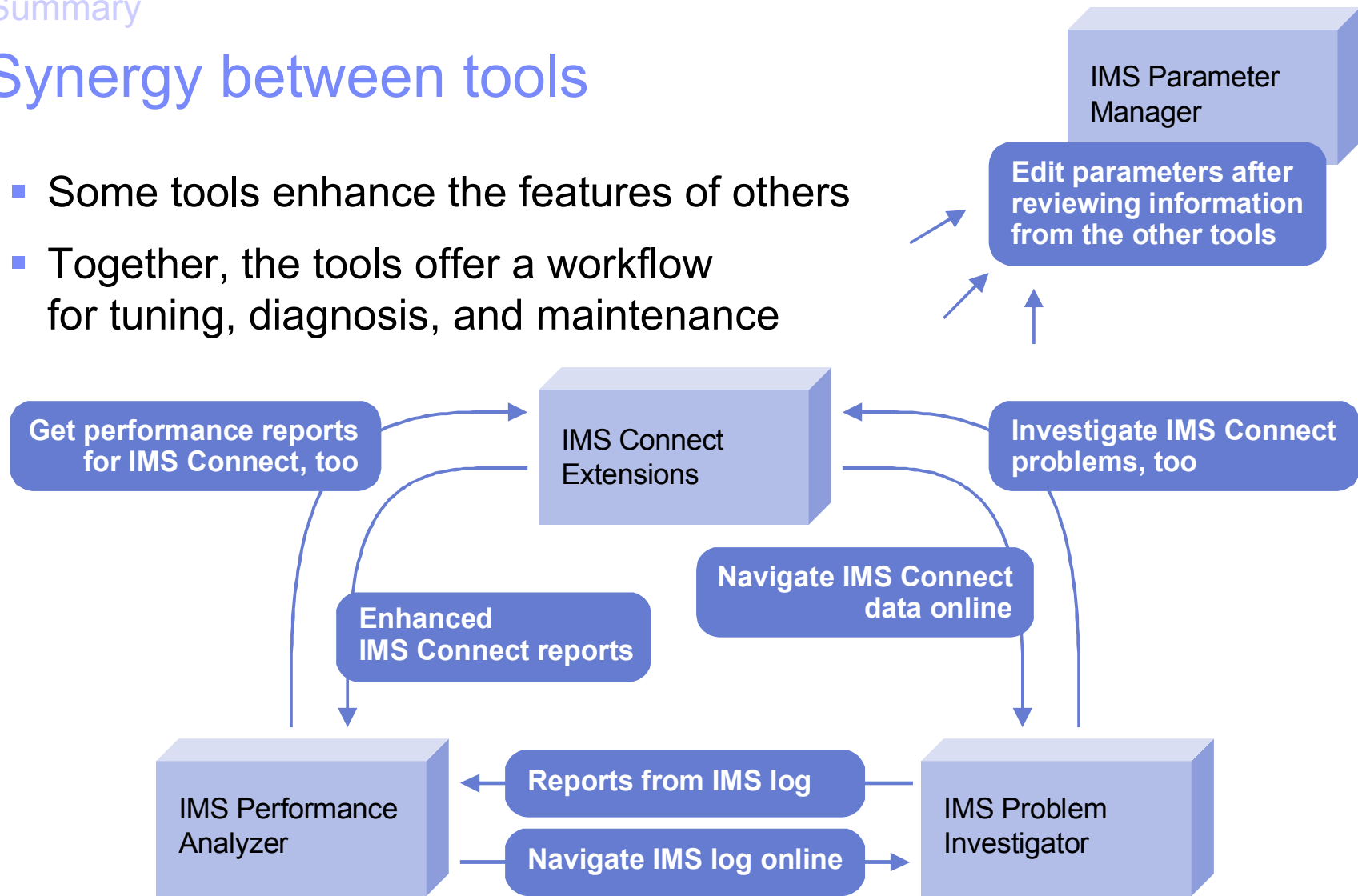
- IMS Syntax Checker (included with IMS)
  - ▶ Syntax checking only: no history or audit trail
  - ▶ Does not check all members (see table)

Parameter members	IMS Parameter Manager	IMS V9 Syntax Checker
DBFMSDBx	✓	
DFSCGxxx	✓	
DFSDCxxx	✓	✓
DFSDRFnn	✓	
DFSFDRxx	✓	
DFSFIXnn	✓	
DFSHSBxx	✓	
DFSINTxx	✓	
DFSJVMxx	✓	
DFSMPLxx	✓	
DFSORSxx	✓	
DFSPBxxx	✓	✓
DFSRSRxx	✓	
DFSSPMxx	✓	
DFSSQxxx	✓	✓
DFSVFLxx	✓	
DFSVSMxx	✓	
DFSYDTx	✓	
DFS62DTx	✓	

Summary

# Synergy between tools

- Some tools enhance the features of others
- Together, the tools offer a workflow for tuning, diagnosis, and maintenance



Summary

## More information

- IBM DB2 and IMS Tools website:

<http://www.ibm.com/software/data/db2imstools/>