

*Support to 40 Meter:
Data Analysis and Visualization with AVS*

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LIGO-G950044

*SUPPORT TO 40 METER:
DATA ANALYSIS AND VISUALIZATION WITH AVS[†]*

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- **AVS Overview**
- **Current Perspective on AVS**
- **A Toy AVS network**
- **Current 40-meter Configuration**
- **Planned 40-meter Configuration**
- **Benefits from Support to 40m**

† **Advanced Visualization System**

AVS ADVANCED VISUALIZATION SYSTEM

- **AVS Summary**

- × GUI interface
- × Process Flow Control
- × N-dimensional Data Visualization
- × Extensible

- **AVS Data Formats**

- × Supports Descriptive Headers
- × Supports Simple Data Types
- × Supports Arrays & Structured Data Types
- × Allows Importing Foreign Data Formats

- **AVS Modules**

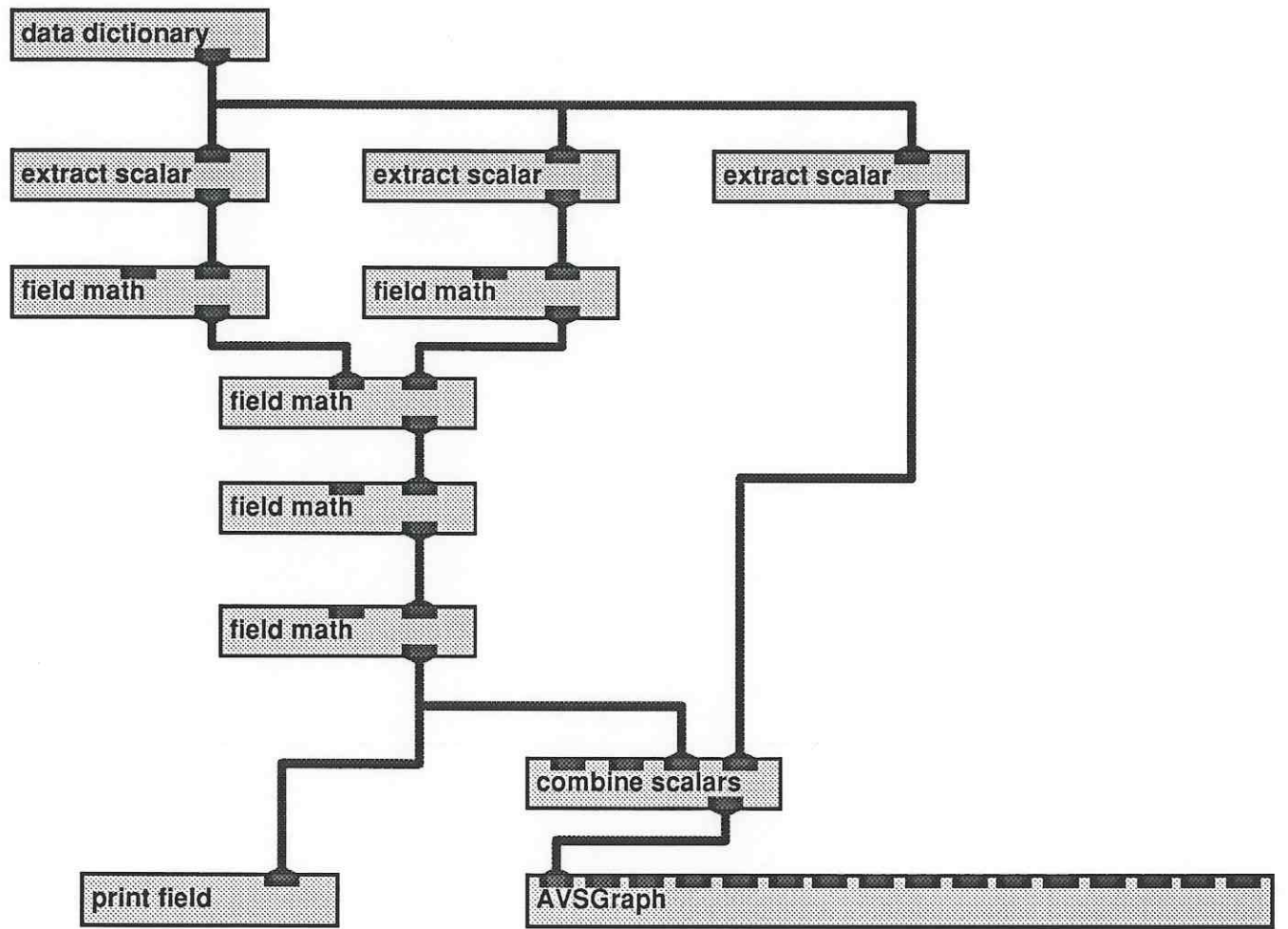
- × Procedural Building Blocks
- × Input/Output/Parameterization Controls
- × C/C++/FORTRAN Code Development
- × Standard Library of Modules Included

- **AVS Networks**

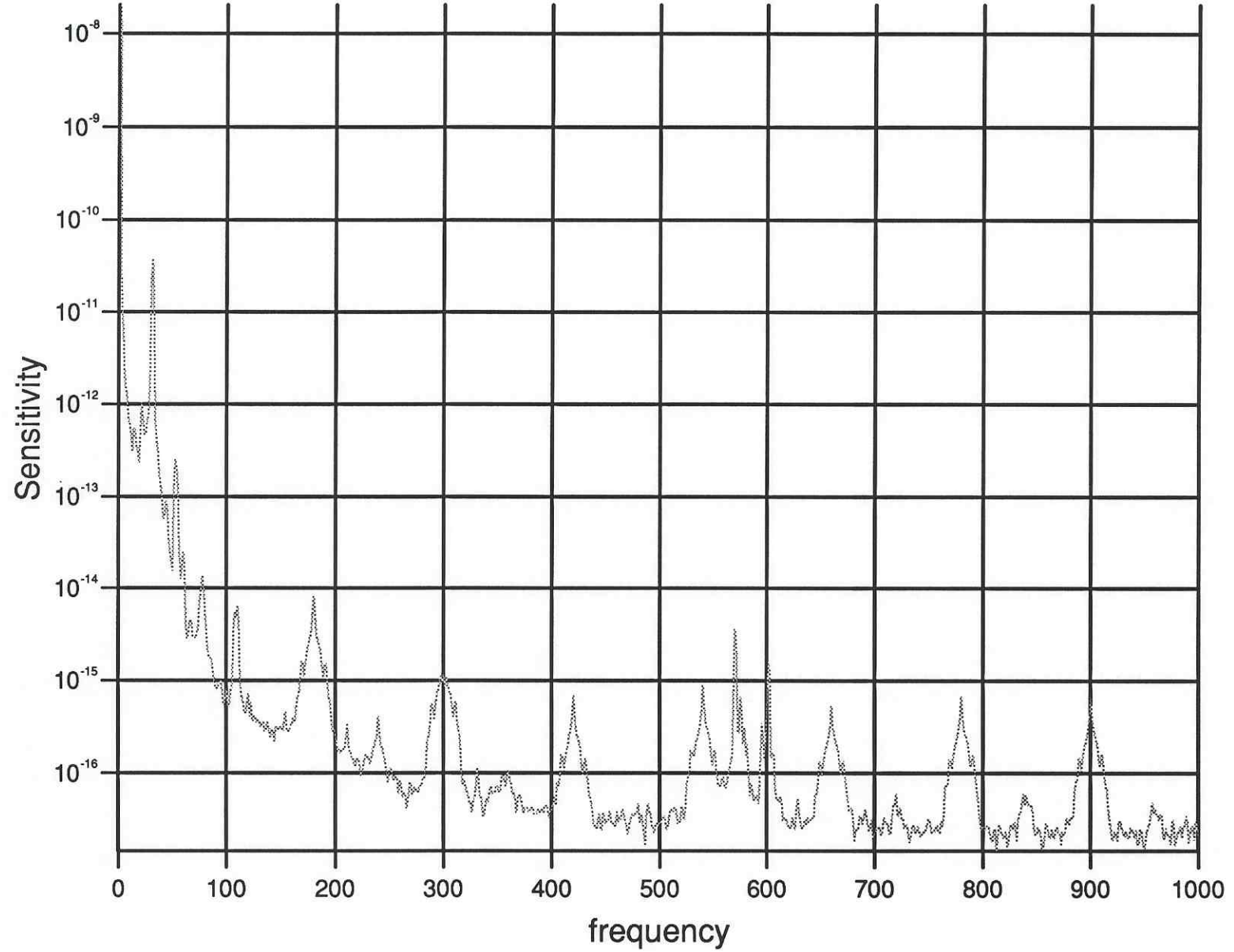
- × Flow Control for Modules
- × "Point/Click/Drag" Construction
- × Distributive Processing
- × Customized Layouts

CURRENT PERSPECTIVE
(<2 WEEKS)

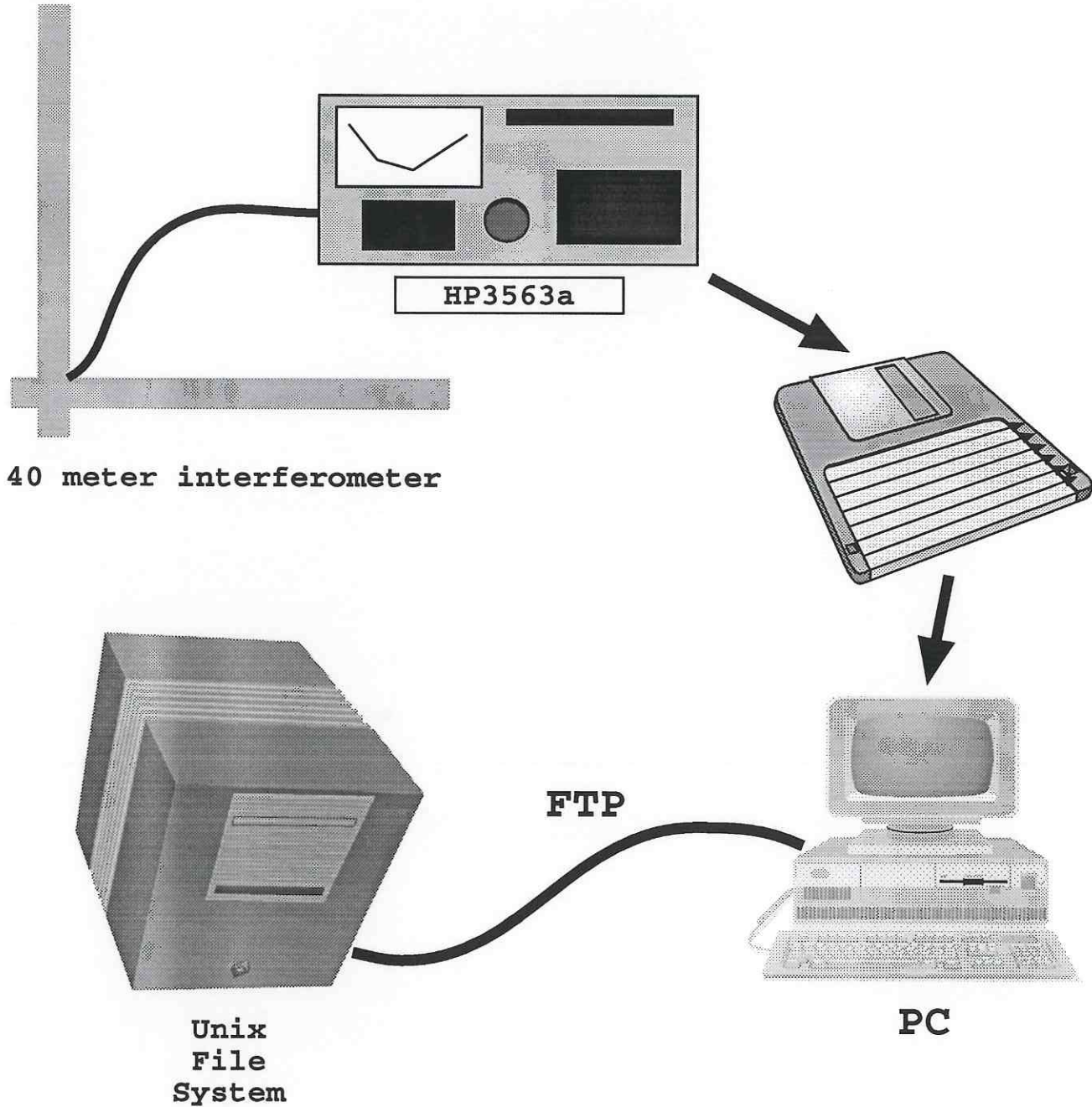
- developed one C module - wrappers can be rather complicated
- developed dozens of networks
- read in time domain and spectral data sets for the 40 meter interferometer
- plotted time domain and spectral data sets
- performed simple data analysis (math functions, FFTs)
- found several ways to crash AVS
- logged 8 support questions with AVS
- requested that AVS patches be installed
- looked for PD 1-D analysis modules to enhance this aspect of AVS
- not ready to abandon AVS...yet ;-)



Power Spectrum

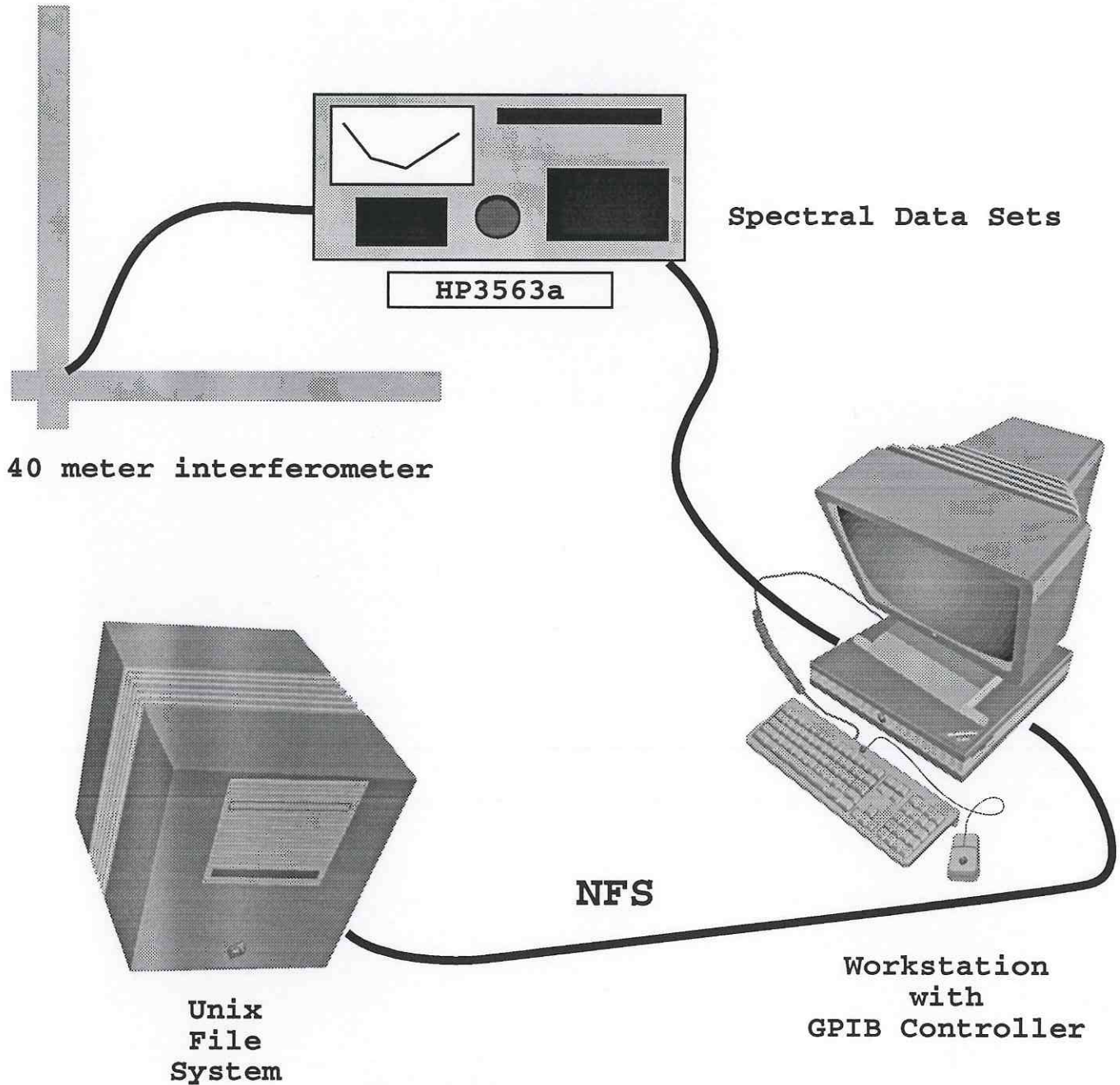


*PRESENT 40M CONFIGURATION:
(SNEAKER NETWORK)*



- +Familiar
- +Existing Analysis Tools
- Very Slow Transfer
- Some Data Corruption
- Description Delocalized

PLANNED 40M CONFIGURATION:
(AUTO NETWORK)



- +Automated
- +AVS Analysis Tools
- +Fast Transfer
- +Consistent Data Sets
- +Descriptive Headers
- Need GPIB Driver ?
- Need some Code Development

KNOWLEDGE TO BE GAINED BY THIS EXERCISE

Experience With:

- AVS Networks Design
- AVS Supported Modules
- Porting of Existing Code to AVS
- Data Formats
- Data Archival
- Data Analysis
- Data Visualization
- End User Satisfaction with AVS