Examples for Architectural styles

PIPES and FILTERS

The best known examples of pipe and filter architectures are programs written in the Unix shell [16]. Unix supports this style by providing a notation for connecting components (represented as Unix processes) and by providing run time mechanisms for implementing pipes.

Traditionally compilers have been viewed as a pipeline systems (though the phases are often not incremental). The stages in the pipeline include lexical analysis, parsing, semantic analysis, code generation.

Other examples of pipes and filters occur in signal processing domains [17], functional programming [18], and distributed systems [19].

Event-based, Implicit Invocation

The idea behind implicit invocation is that instead of invoking a procedure directly, a component can announce (or broadcast) one or more events.

Other components in the system can register an interest in an event by associating a procedure with the event.

When the event is announced, the system itself invokes all of the procedures that have been registered for the

event.

Thus an event announcement ``implicitly'' causes the invocation of procedures in other modules.

Examples:

Editors and Variable Monitors register for a debugger’s breakpoint events.

When a debugger stops at a breakpoint, it announces an event that allows the system to automatically invoke methods in those registered tools.

These methods might scroll an editor to the appropriate source line or redisplay the value of monitored variables.

Examples:

IDE: Programming environments to integrate tools.

Database management systems to ensure consistency constraints.

User interfaces to separate presentation of data from applications that manage the data.

Syntax-directed editors to support incremental semantic checking.

Repository

The choice of control discipline leads to major subcategories. If the types of transactions in an input stream of transactions trigger selection of processes to execute, the repository can be a traditional database. (any DB application)

If the current state of the central data structure is the main trigger of selecting processes to execute, the repository can be a blackboard. (Symbol Table)