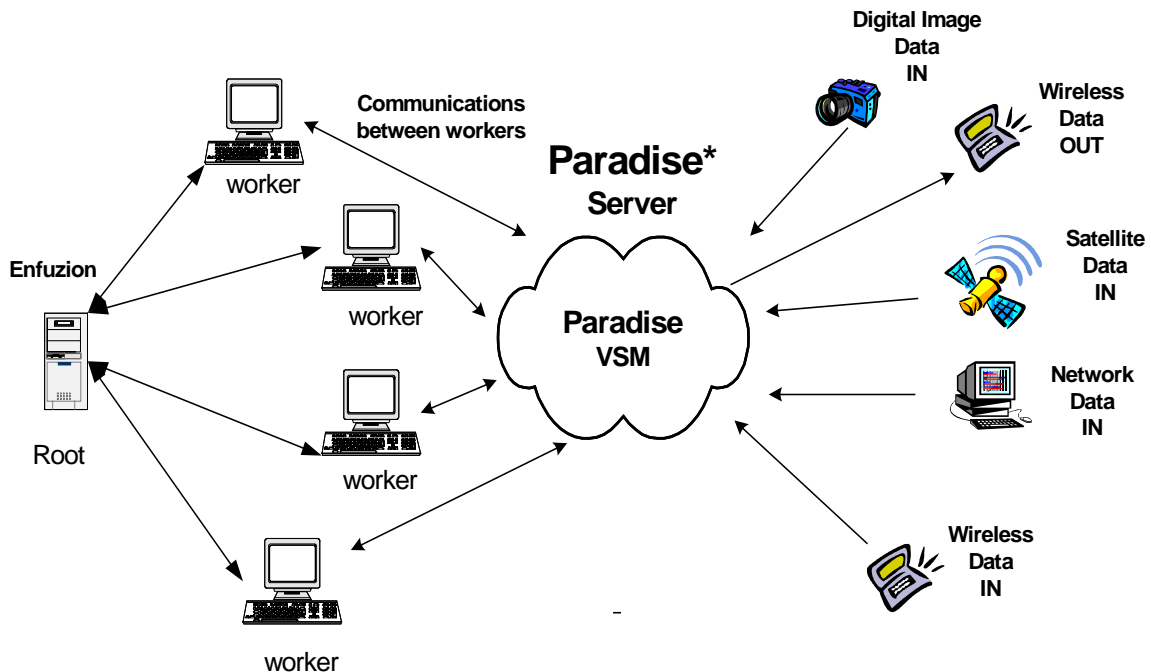


Paradise® Improves Network Parametric Computing

Many large-scale computations require running a single application many times using different input data. This is a time-consuming process when done sequentially on a single processor. Users are increasingly turning to batch queuing systems, such as LSF and PBS, and software tools, such as those from United Devices, Parabon, Entropia, and Turbolinux, to run a single application simultaneously on different nodes on a network, using varying input data. The software tools assign individual executions of the application to the least busy nodes on the network. This “network parametric computing” gets the job done faster by doing it in parallel.

Most of the tools presently available for network parametric computing do not have a mechanism that permits the sharing of data among the different “runs” of the application going on at any moment on the different network nodes, or among the different runs and any other applications that might be able to make use of that data. Those tools that currently do permit data sharing use very awkward mechanisms to do so. **Paradise's** Virtual Shared Memory (VSM) – an advanced Distributed Shared Memory - from Scientific Computing Associates Inc. can be used in conjunction with these tools to provide smooth data sharing among processes and applications. The result is a coordinated parametric computing environment that improves the performance of the network and the speed with which problems can be solved.

Even many seemingly parallel computing applications are in reality “Single Program Multiple Data” (SPMD) in nature. If the required data is “parametrized,” these applications, too, can take advantage of a coordinated parametric environment to share data and thus avoid the complexities of message passing. The illustration below shows a master processor controlling a network of machines executing a SPMD problem with the interprocess communication being handled by the shared memory in **Paradise**.



* Paradise is a registered trademark of Scientific Computing Associates