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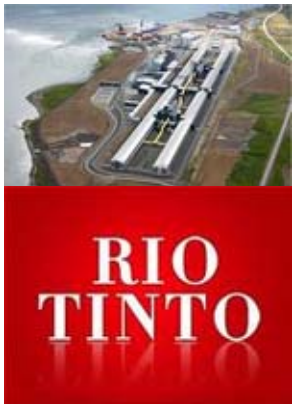
# Rio Tinto Replaces PDP-11/73s with Ospreys




As part of an overall site renovation, Rio Tinto recently upgraded 30 year old computer systems at the heart of the control system at a large aluminum smelter in Canada. Utilizing Migration Specialties Osprey hardware, software, and services, Rio Tinto was able to replace two legacy DEC PDP-11/73 systems in a master/hot spare configuration without modifying the control or hardware interfaces.

The Osprey is essentially a brand new PDP-11 with a modern operating interface. Comprised of a Windows-based server, PCI-based PDP-11 emulator card, and appropriate backplane, the Osprey can be deployed as a direct replacement for any DEC PDP-11 system. The Osprey emulator card replaces the PDP-11 CPU and memory. The Windows host system provides virtual disk, tape, and network support. The optional UNIBUS or QBUS backplane supports specialized I/O cards. Residing on new hardware, the PDP-11 O/S and user applications require no changes whatsoever.

Rio Tinto engaged Migration Specialties to deliver an onsite turnkey port of two PDP-11/73 systems over four days. In the end, two Migration Specialties consultants and the Rio Tinto IT staff would port three systems, all without disrupting smelter operations, which run 24/7, 365 days a year.

Day one was spent unpacking, setting up, and checking out the Osprey equipment. One Osprey system was set up in the main data center while the other was set up in the test lab. By the end of the day the labs PDP-11 test system had been successfully ported to one Osprey.

During day two the hot standby PDP-11 was successfully ported to the Osprey in the data center. The Osprey in the lab was used to validate various configurations and components without impacting the production system. The test system was also used to support multiple PDP-11 configurations, which facilitated the transfer of PDP-11 data to the new environment.

Day three was devoted to testing the production Osprey. The smelter maintains a fully redundant control system, so it was possible to connect the production Osprey to the standby control system and check out all of the equipment interfaces. Rio Tinto personnel carried out the testing with Migration Specialties consultants standing by. While this testing was taking place, the lab Osprey was employed to copy all relevant PDP-11 disk drives and RL02 PAKs to virtual drives. By the end of day three we had operationally validated the Osprey and fully copied all required PDP-11 data to the Osprey environment.

Day four saw the production Osprey take over operation of the smelter for 12 hours. While the operational test was taking place, Rio Tinto IT personnel received final training on Osprey configuration and operation. The operational test was successful and the Osprey was left in place, replacing one PDP-11 system. During the next few weeks Rio Tinto IT staff would transition the lab Osprey system to the production environment, displacing the second legacy

PDP-11/73. The smelter has now been operating under the control of the Osprey systems for several months.

The turnkey Osprey replacement of the legacy PDP-11 systems was successfully delivered in four days with no impact on plant operations. Users see no changes to their applications and improved system reliability. The IT department sees benefits from new hardware, modern operational interfaces, improved backup and recovery facilities, improved operational integration, smaller equipment foot prints, and lower operating costs.

The entire port, including hardware, software, services, and expenses, was delivered for under $82,000US. Re-engineering this system would have cost several million dollars. Migration Specialties legacy replacement solutions offer tremendous savings while replacing critical legacy hardware with modern equivalents.

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Migration Specialties offers legacy hardware virtualization solutions for Alpha, VAX, PDP-11, and HP1000 systems. Visit the Migration Specialties Virtual Systems page for additional information.