CROSSROADS®

Success Story

Science & Technology Facilities Council

Rutherford Appleton Laboratory, part of the Science & Technology Facilities Council www.stfc.ac.uk/

Field

- Research

Benefits

- Proactive testing and monitoring of tapes and drives
- Statements about the quality of tapes
- Information about the performance and level of utilization of drives
- Knowledge about the specific reason for an error: tape, drive or combination of both factors
- Possibility to intervene and make corrections early, before the occurrence of backup errors, crashes or non-readable data in the event of recovery

Forward-looking research meets data backup for the future. With the ReadVerify® Appliance from Crossroads, the Rutherford Appleton Laboratory is making its tape processing fit for the future!

"Our work is not simply a question of backup and archiving. We also ensure that these processes run in a highly reliable and efficient manner and that the quality of data backup and recovery is always optimal. The ReadVerify Appliance from Crossroads helps us to make this a reality."

~ Dr. David Corney, Leader of the Petabyte Storage Group, e-Science Centre, Rutherford Appleton Laboratory

Rutherford Appleton Laboratory

Both were physicists. Both received the Nobel Prize. With their revolutionary research work in the fields of atomic and experimental physics, both laid the scientific baselines for ground-breaking innovations. Both have lent their names to one of the most important research facilities in the world.

These award-winning, innovative physicists are Lord Ernest Rutherford and Sir Edward Victor Appleton.

Appleton received the Nobel Prize for Physics in 1947 for his important contributions to our understanding of the ionosphere. One of the results of this understanding was the development of radar. Rutherford, on the other hand, provided experimental proof of the atomic nucleus. The atomic model was named after Rutherford in 1911 and his impact on atomic physics is still felt today.

These accomplishments are the reason that one of the world's most highly reputable research institutes is named after them: the Rutherford Appleton Laboratory (RAL).

Organizationally part of the Science & Technology Facilities Council, RAL supports national and international basic and applied research. More than 1,200 employees work at the Rutherford Appleton Laboratory in Oxfordshire, in the United Kingdom. Each year, RAL offers more than 10,000 scientists, researchers and engineers access to its excellent infrastructure and state-of-the-art technologies. Furthermore, the Laboratory participates in global research programs of the greatest scientific importance. The most notable among these is the Large Hadron Collider particle accelerator at the European Nuclear Research Centre CERN, which is primarily used to simulate the effects of the Big Bang.

Petabyte Storage Group

In addition to providing technologies, equipment and supporting research projects, the Rutherford Appleton Laboratory also focuses on another area: The Petabyte Storage Group of the e-Science Centre led by Dr. David Corney. He is responsible for running services which offer data storage and grid computing and for developing tools for data recovery, long-term data preservation and scalable, high-integrity data storage. And it's not only RAL, but also other parts of the Science & Technology Facilities Council and international research institutes that utilize the services of the Petabyte Storage Group. A key focus of the work carried out by Dr. Corney's team is tape-based backup and (long-term) archiving. Two SUN SL 8500's, each with 10,000 tapes and SUN T10000A and T10000B drives are used for backup and archiving an annual data volume in excess of five petabytes.

Forward-looking research

There can be no doubt that Rutherford and Appleton may be termed visionaries and pioneers in the natural sciences. The fact that these scientists were unwilling to make compromises in their field of research and that only the best was good enough for them can be seen from this quotation from Rutherford: "All science is either physics or stamp collecting."

The Rutherford Appleton Laboratory operates in the spirit of the men after whom it was named. Since its foundation, it has been "ahead of the game" as far as science and research are concerned. RAL conducts and supports forward-looking research in varied ways and produces simple solutions for complex problems. Only the best and highest-performing infrastructure and technology are used. For example, the Diamond Light Source synchrotron, a particle accelerator, is regarded as the world's most intensive light source and is used to discover the origins of Alzheimer's disease. The ISIS, one of the brightest-neutron sources in the world, is used to break down atomic cores into their constituent elements.

In short: research at the Rutherford Appleton Laboratory sets standards for the future.

ReadVerify Appliance – data backup for the future

This, of course, makes great demands on RAL's data storage, systems and services. A sophisticated data backup concept, highly trained experts in the fields of backup and archiving and an excellent technology infrastructure all help. Dr. Corney knows the data managed by his team is highly sensitive. "The data the Petabyte Storage Group handles on a day-to-day basis is of the highest value for science and research. It is our primary task to provide high-integrity data storage and archive as well as long-term data preservation services for both, internal data, and external research facilities. For example, here in the UK we are the tier 1 centre of the Particle Physics Community, and thus the first point of call for data backup for many institutions in the field of particle physics. This includes CERN's LHC project. The Petabyte Storage Group is one of eleven international tier 1 centres of CERN, which are responsible for the direct backup of the raw data for the LHC particle accelerator. We have to ensure that all these processes run smoothly, efficiently and highly reliably".

A solution is required that helps to constantly maintain the dependability, quality and integrity of the tape backup and archiving processes. A solution that is able to help to proactively identify weaknesses in the data backup processes and thus prevent errors from occurring. A solution that makes the data backup, storage and archiving of the Rutherford Appleton Laboratory fit for the future.

And this is where the ReadVerify Appliance (RVA®) from Crossroads Systems comes into play…

Complex problems are easily solved

Rutherford and Appleton were regarded as brilliant scientists. Nonetheless, their aim was always to find simple explanations for complex problems. How did Rutherford once put it with his dry sense of humor? "A good scientific theory should be explicable to a barmaid."

A similar principle applies to the ReadVerify Appliance: RVA is a highly intelligent, yet simple appliance, which can provide solutions to previously unsolved problems and well-founded answers to previously unanswered questions regarding backup and archiving. "RVA determines if drives are performing satisfactorily, explains the quality of the tape media, and identifies the sources of errors leading to faults in backup and recovery.

RVA is exactly what the Rutherford Appleton Laboratory needed

RVA was connected to the two SL 8500 libraries via ACSLS and commenced operation in the existing backup infrastructure. While monitoring the performance and utilization level of the drives being used, RVA also checks the quality of the tapes. Thanks to the precise information, which RVA supplies in the form of clear reports on the most important components of the data backup system, it becomes possible to analyze errors almost before they occur. "It was important for us to get hold of a tool with which we could identify errors in backup, archiving and recovery at an early stage and correct them," explains Dr. Corney. "In this way we can improve the reliability of our work and the readability of data in the event of recovery."

Because RVA proactively provides information about critical factors and furthermore provides statements about specific reasons for errors, backup administrators can solve problems before serious errors or backup crashes occur–and before unreadable data is generated in the event of recovery. RVA is an indispensable solution for the Rutherford Appleton Laboratory, which is entrusted with saving and storing highly-sensitive research data.

While ensuring more reliable backup and recovery processes, RVA also saves a lot of time and money. The time needed to identify errors can be greatly reduced, and infrastructure costs can be cut through optimal use of tape media and drives.

Reason enough for the Rutherford Appleton Laboratory to use the ReadVerify Appliance from Crossroads- reliable and efficient data backup – with a future!

CROSSROADS®
www.crossroads.com

11000 North MoPac Expwy. Ste. 100 Austin, Texas 78759 866.289.2737 512.349.0300 sales@crossroads.com

ABOUT CROSSROADS

Crossroads Systems, Inc. (NASDAQ: CRDS), is a global provider of solutions and services that ensure stored data is proactively protected and reliably recovered. Crossroads offers organizations powerful data protection, proactive data security, intelligent storage connectivity, unmatched performance, and significant cost savings. Founded in 1996 and headquartered in Austin, Texas, Crossroads holds more than 100 patents granted and pending and has been honored with numerous industry awards for innovation in data protection and storage. Visit www.crossroads.com.

RVA_SS_122811