theDUNEproject
Media Asset Preservation

UNIVERSAL
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EMIL BERLINER STUDIOS

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The Relation

Dunes are exquisite, usually fragile, works of art made of billions of tiny, yet tremendously important, components. As such they are subject to constant stress induced by erosion and, of course, mankind. How does this relate to an all-digital archiving project? Erosion is all about the continuing struggle against ageing and quality degradation of media assets. We humans play an important part in that: we want everything at the best possible quality—and right away if you please. Some people, on the other hand, spend their lives worrying whether the carriers will ever be returned, and if so, in what state.

Granted, a modern-day digital archive is a lot more than just a dune equivalent: it must provide a safe passage in all directions, i.e. all components to be archived need to be brought together. Finding what you need is indeed crucial, while the contents need to be available at the best possible quality.

Like dunes, however, we are faced with an erosion problem, also known as ageing. Universal Music International has decided to take on this permanent battle against the ageing process of its media gems. Preservation takes center stage in **theDUNEproject**. Our assets are transferred to the digital domain using cutting-edge technology and Emil Berliner Studios' expertise. The technology ensures high-quality digital captures, thereby giving our historic media assets a bright future. After the preservation stage another crucial aspect follows: exploring the content. Gathering all available metadata indeed guarantees quick and effective media asset search and retrieval routines.

The third pillar of our system is content logistics: ensuring a safe journey of all desired media components into and out of our digital archive.

True to our philosophy, a digital archive should cater to creative and operative processes, which is why the productive side relies on a proprietary architecture that also meets stringent security requirements. These considerations have led to a hardware architecture that stands up to our highest standards.

A dune can travel, while a multimedia archive is faced with ever shorter cycles of media availability. Nobody knows which digital standard format will be available throughout the next 100 years. How does **theDUNEproject** cope with that? We decided to implement a "don't worry" format: **theDUNEproject**'s architecture stores each media asset as a data set. The underlying system environment allows for swift and automatic format conversions—after all, a media asset doesn't care in what format you decide to archive it. In other words: Ours is a dune that can shift—from one storage media, or format, to the next. "And now for something completely different" has become a digital reality at last…

Emil Berliner Studios launch **theDUNEproject**—
Media Asset Preservation for Universal Music International

With over 400,000 carriers, Emil Berliner Studios' climate-controlled archives boast an impressive collection of media assets that span everything from cutting-edge surround productions to the world's first lacquers produced in the late 19th century by the company's founder, Emil Berliner. And that asset catalog grows by the day…

Finding even our oldest gems has always been a breeze, yet they were not accessible in the digital domain. After 7 years of R'ing & D'ing, Emil Berliner Studios' techs, balance engineers and archive staff are happy to announce the birth of a proprietary system that will eventually contain digital versions of all carriers. The acquisition stage includes both the actual audio recordings and the associated metadata. Emil Berliner Studios suspect that the chances of finding "sleeping metadata" of the highest interest look excellent: "Of course we are hoping to find the odd anecdote concerning legendary studio productions and live recordings," says Rob Pel, Managing Director of Emil Berliner Studios.

This project, called **theDUNEproject**, is headed by the company's Technical Director, Stefan Shibata. He brought together several technology-savvy companies whose resources and expertise were deemed essential for **theDUNEproject**. The hardware architecture and content logistics, for instance, are supplied by Sun Microsystems, while the database, the archive's front end and project management were developed by Atos Origin. The production environment is supplied by Studio Network Solutions, the preservation environment for analog tapes comes from Cube-Tec International, while the process architecture, design and implementation of IT operations were devised by ITISO.

Even Stefan Shibata admits that he has yet to comprehend the full extent of this momentous project: "We store each asset in its original format, be they mono tapes, analog or digital multitrack originals. At this stage, we don't know how much data we are actually talking about." We decided to start out with one petabyte (one million gigabytes) of storage capacity, and twice that amount for backup copies. More capacity can be added as we go." The archiving architecture relies on a "carrier-transcending" format, appropriately dubbed the "don't worry" format by Emil Berliner staff, because **theDUNEproject** boasts a batchable auto copy/conversion function.

The metadata will be encoded in a proprietary multi-lingual database format scheduled to contain metainformation from a variety of sources. Stefan Shibata: "We store everything we find, irrespective of what the information is about. It is not for us, for instance, to decide which of two contradictory production notes might be the correct one. Even though we don't believe everything we see, we feel we should preserve all data we can lay our hands on."

That, of course, is nothing compared to the challenge of digitizing the analog assets of Emil Berliner Studios' archives: Quite a few historic tapes, for instance, have reached a stage where they can probably be read only once without damaging them. Moreover, the assets come in various shapes and guises, and often require playback devices that went out of production decades ago.

So far, Emil Berliner Studios have kept and maintained devices for all required formats. Some of them are only fully functional thanks to custom-designed add-ons.

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theDUNEproject
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theDUNEproject—the team

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