



## **INTERNATIONAL MAGNETIC TAPE STORAGE TECHNOLOGY ROADMAP WORKSHOP**



**Broomfield, Colorado, USA  
August 24-25, 2011**

The **Information Storage Industry Consortium (INSIC)** is updating the **International Magnetic Tape Storage Roadmap** that was last published in September 2008. The objective is to produce a ten-year outlook for future tape technology advancements, as well as for the applications environment in which tape products will operate. Both are necessary to maintain tape storage devices as a key element of future information storage systems. The likely advances in competitive storage technologies will also be estimated to provide a frame of reference for the tape technology roadmap.

The initial step in the roadmap study is an assessment of the requirements for future data storage systems. Major applications for tape storage, such as backup and restore operations, archiving, streaming data acquisition, huge capacity automated storage, etc., will be considered. The increased emphasis on data protection, 24x7x365 operation, and regulatory requirements will also be factored into a comparison of the likely roles of tape and competing disk storage options. In addition, the role that tape plays in a tiered storage strategy consisting of multiple storage technologies will be explored. An expert **Applications & Systems** roadmap group has been working since November 2010 to complete this assessment, and will report on its conclusions at the International Magnetic Tape Storage Technology Roadmap Workshop.

As with previous roadmaps, we will then use this information on future applications and systems requirements to help guide the generation of a roadmap for the future tape technology advancements needed to ensure that tape storage solutions will be viable in future storage systems. This will enable a roadmap to be proposed for future progress in tape drive hardware and media, as well as for the materials and components incorporated into the drives and media. Opportunities will also be highlighted for future joint precompetitive research projects in all aspects of the technology. The key step in the formulation of the technology portion of the roadmap will be the International Magnetic Tape Storage Technology Roadmap Workshop described in more detail below.



## Roadmap Planning & Leadership

The new roadmap study, scheduled to be published in early 2012, will be generated from the results of a two-day workshop which will consider future applications for magnetic tape storage systems and will generate a detailed assessment of expected future tape technology advancements. The workshop will be held on August 24-25, 2011, at the Renaissance Boulder Flatiron Hotel in Broomfield, Colorado.

The **Applications & Systems** requirements are being considered by a group under the leadership of Barry Schechtman, INSIC's Executive Director Emeritus. This group will develop an assessment of future **information storage environments** and their implications for tape storage. The scope of this assessment will include the trends in storage systems and the impact of expected trends in competing storage technologies on future tape storage applications.

The **Technology Roadmap** efforts will be led by Robert Raymond, Senior Manager, Oracle Tape Storage Engineering. This group will collectively develop a roadmap for future linear magnetic tape drive hardware and media designs. Four Technology Roadmap subgroups will focus on the future technologies for magnetic heads, media, tape transport and recording channels, under the expert leadership of:

**Magnetic Head Technology:** Larry Neumann, Quantum

**Media Technology:** Larry Olson, Imation

**Tape Transport Technology:** Paul Poorman, Hewlett-Packard

**Recording Channel Technology:** Evangelos Eleftheriou, IBM

# Technology Workshop Organization and Objectives

The INSIC Roadmap Leadership Team will guide the process of selecting participants for the workshop, organizing the workshop and the subsequent production of the roadmap report.

Workshop participants will contribute to the generation of the technology sections of the roadmap. Participation will involve recognized world experts and will be on an invitation-only basis. The workshop will consist of a combination of discussion/brainstorming plenary sessions and small breakout working sessions of the experts on specific topics. Each participant will receive a copy of the new roadmap document upon publication.

Prior to the workshop, participants will be invited to work in subgroups, which will cover the various topics related to the technology scope of the study. Each subgroup will be expected to conduct e-mail and telephonic discussions in advance of the workshop to develop an initial strawman view of the subgroup's topic.

The workshop organization will be similar to previous tape roadmap meetings with Technology Roadmap subgroups on **magnetic head technology, media technology, tape transport technology** and **recording channel technology**. The block agenda for the two-day meeting will consist of:

## DAY 1 (full day)

- 1) At an opening session of all participants, summary presentations will be given on the findings of the Applications & Systems Roadmap subgroup and on the preliminary view of the Technology Roadmap.
- 2) Each Technology Roadmap subgroup leader will present their subgroup's initial strawman view of the roadmap, relating to the subgroup's topic.
- 3) Breakout sessions will then be conducted to refine each Technology Roadmap subgroup's view, following the initial discussions with the combined group of workshop participants.

## DAY 2 (half day)

- 1) Summaries of the Technology Roadmap subgroup results will be presented to and discussed by the combined workshop group.
- 2) Preliminary reports will be generated by each Technology Roadmap subgroup, and these reports will form the basis for INSIC's new International Magnetic Tape Storage Roadmap.

It is expected that the identification of key technology challenges and potential shortcomings in the ability to meet projected technology requirements will lead to ideas for **future collaborative research proposals**.

## Workshop Contributor Needs and Expectations

While not all attendees will be expected to make presentations or lead discussions at the workshop, everyone is expected to contribute to formulation of the “strawman” proposals prior to the workshop, to participate actively and contribute to the discussions at the workshop, and to contribute to the review of the resulting draft document prior to finalization of the roadmap. Among the questions that participants should be prepared to discuss during the workshop are the following:

- What are the important **technical hurdles**?
- What are the key **component and materials challenges**?
- What are the **competing technologies** and how does magnetic tape storage stack up against them?
- What topics would be suitable for **collaborative pre-competitive research**?



## Benefits to Participants

Participants in this workshop can look forward to gaining a deeper understanding of the dynamics and likely future directions of tape storage technology and applications developments. The output of this workshop will be integrated into an overall magnetic tape storage roadmap. Participants will receive a copy of the roadmap document upon its publication.



## Registration

Details on registration, the workshop agenda, meeting site logistics and hotel information will be sent to each invitee well in advance of the workshop. **A registration fee will be required** to offset the costs of meals, meeting rooms and audiovisual equipment rental.

## About INSIC

The **Information Storage Industry Consortium (INSIC)** is the research consortium for the worldwide information storage industry. The mission of INSIC is to provide for effective interaction among the information storage industry and research universities in order to promote advances in data storage technology. INSIC, founded in 1991 as the National Storage Industry Consortium, pursues this mission through the creation and management of collaborative research programs (involving industry, academia and government laboratories) in a variety of advanced storage technologies, as well as through the organization of workshops and symposia and the publication of storage technology roadmaps. INSIC has organized and managed a number of programs related to magnetic tape storage technology and has a significant interest in exploring the potential for expansion of its current collaborative research programs in the field. Additional information on INSIC, its programs and membership requirements can be found by visiting the INSIC web site at: [www.insic.org](http://www.insic.org)



## Roadmap Leadership Team

Robert Raymond  
Oracle Corporation

Barry Schechtman  
Information Storage Industry Consortium

Evangelos Eleftheriou  
IBM Zürich Research Laboratory

Larry Neumann  
Quantum Corporation

Larry Olson  
Imation Corporation

Paul Poorman  
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