



# Webcast systems

## Case study



Investing in the future by working together for a sustainable and competitive region



Executive summary .....	3
Problem statement .....	4
Alternatives .....	5
Alternative 1 - Mediasite from Sonic Foundry, Inc.....	5
Arguments for Mediasite: .....	6
Arguments against Mediasite:.....	6
Alternative 2 - EchoSystem from Echo360 .....	7
Arguments for EchoSystem: .....	8
Arguments against EchoSystem: .....	8
Alternative 3 - Accordent Capture Stations and AMMS from Accordent Technologies.....	9
Arguments for Accordent: .....	10
Arguments against Accordent:.....	10
Alternative 4 - Tegrity Campus 2.0 from Tegrity Inc. ....	11
Arguments for Tegrity: .....	11
Arguments against Tegrity:.....	12
Conclusion.....	13
Implementation.....	14
Installation of server software .....	14
Installation in lecture room.....	14

## Executive summary

The major point of this case study is to discuss the technical requirements and implementation of an automatic webcast system at the University of Stavanger, Norway. The main arguments for a webcast system are to enhance learning and make production of e-learning less expensive and time-consuming.

During this case study a lot of time has been spent examining several alternative systems. Based on this research, Mediasite from Sonic Foundry has been evaluated as the system of choice.

The main arguments for the Mediasite system are:

- Its powerful capacities of managing and monitoring numerous recorders in different lecture rooms remotely
- Powerful integrated scheduler which automates recording and publishing
- Flexible content management system with integrated access control
- Powerful activity reporting and statistics
- Powerful editing capacities

During summer of 2009 Mediasite was installed permanently in a lecture room at the University of Stavanger. A mobile recorder was also purchased to provide ad-hoc recordings on campus.

The Mediasite system at the University of Stavanger now consists of these two recorders and the Mediasite Server which makes it possible to manage the system and automate the recording and publishing process.

The system has proven to be very stable and functional from a technical and administrative point of view. The number of recordings at the University of Stavanger has increased dramatically by using the Mediasite system. The effectiveness of the system was tested during autumn 2009. In a series of recordings, approximately 80 lectures from the mathematics course were recorded and published automatically. This kind of effectiveness makes it possible to enhance learning and students flexibility at a reasonable price.

## Problem statement

Since 2001, the University of Stavanger has produced lecture webcasts by combining video, audio and graphics. This method has required a lot of manual processing; video recording, video editing, graphics editing, and multimedia publishing using Adobe Flash. In order to reduce this time-consuming process, the central issue of the case was to implement a system which allows automation of the recording and publishing process. By producing webcasts automatically, the university will be able to increase the number of webcasts dramatically and therefore enhance learning. Webcast-technology also makes learning more flexible by making lectures available for on-demand viewing and also makes it easy to share content.

Since the main issue was to automate the recording and publishing process, the following technical requirements were central:

- Be able to capture video and audio from the classroom and combine this automatically with graphics from any digital source (PC, Smartboard, document-camera etc.) used in the classroom.
- Be able to integrate with existing audio/video-equipment and control systems used in classrooms (for example Crestron, AMX etc.), so that the lecturers will not have to learn new technology.
- Be able to schedule recordings so that the lecturer will not have deal with the technical aspects of starting and stopping the recordings.
- Be able to publish lectures automatically as a live-event.
- Be able to publish lectures automatically for on-demand access.
- Be able to manage recordings and meta data (integrated searchable content management system)
- Be able to manage users, presenters, administrators etc.
- Be able to manage access control.
- Be able to manage and monitor server and recorders remotely.
- Be able to edit recordings (edit time, chapters, graphics etc.)
- Be able to publish various formats, including streaming and podcast formats.

Another central issue was the choice between solutions based on either open formats/open source or commercial products. Aspects to consider regarding this issue:

- Level of support and upgrades
- Maintainability
- Price vs. functionality

This case has focused on the technical issues only. Issues regarding copyright and pedagogy have not been covered in this case. However, time was also an aspect since there was a demand for a recording system at the University of Stavanger by August 2009.

## Alternatives

There are a lot of software and systems on the market which provides lecture recording. This case study has not focused on desktop solutions which often only support screen capture and video/audio recordings in various formats on a computer. Instead, this case study focuses on systems which also support advanced features such as VGA-capture, scheduling, remote control, automatic publishing, advanced system management etc.

To get an overview of available solutions, this case has included a long period of research. What became obvious during this period was the fact that there is no open source solution available which meets the requirements. A European project called "Opencast" is working on a lot of interesting things regarding open source webcasting, but their solutions were of various reasons not an alternative in this case. This fact left us with a couple of commercial alternatives. This part of the case study will examine the major argument for and against each alternative.

### Alternative 1 - Mediasite from Sonic Foundry, Inc

Mediasite is a well-known system which records lectures using the Mediasite Recorder and publishes recordings to the Mediasite Server.

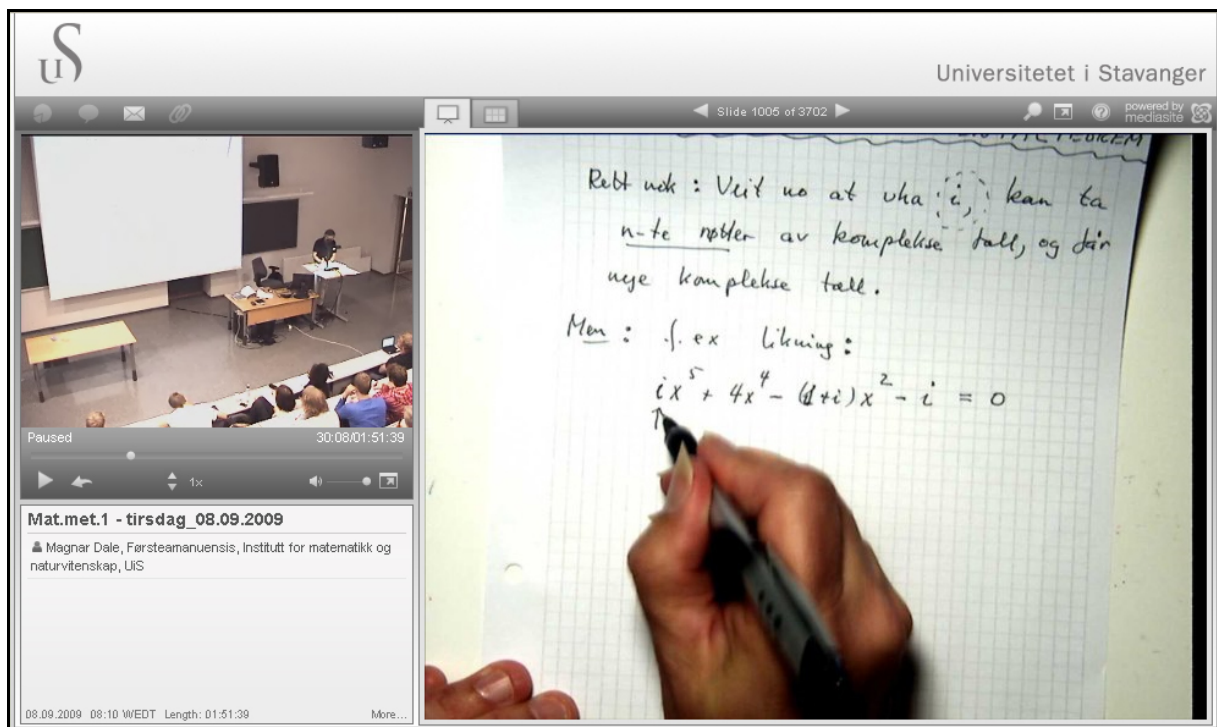


Figure 1 - Mediasite multimedia interface



Figure 2 - Mediasite Mobile Recorder

#### Arguments for Mediasite:

- Powerful capacities of managing and monitoring numerous recorders in different lecture rooms remotely
- Powerful integrated scheduler which automates recording and publishing.
- Integrates easily with existing audio/video-equipment and control systems.
- Flexible content management system with integrated access control
- Customizable players and catalogs
- Flexible user and presenter management
- Powerful activity reporting and statistics
- Powerful editing capacities
- Playback and streaming using the Silverlight-based Mediasite Player which now supports Windows, Apple and Linux platforms.
- Dedicated recorder appliance (both stationary and mobile) with audio, video and VGA capture
- Excellent product support in Norway

#### Arguments against Mediasite:

- Not very flexible support for podcast formats. Only mp3-format is available.
- Expensive recorder appliances, server software and support.

## Alternative 2 - EchoSystem from Echo360

EchoSystem is a system which records lectures using the EchoSystem capture appliance, and publishes recordings to the EchoSystem Server. EchoSystem has also software recorders available.

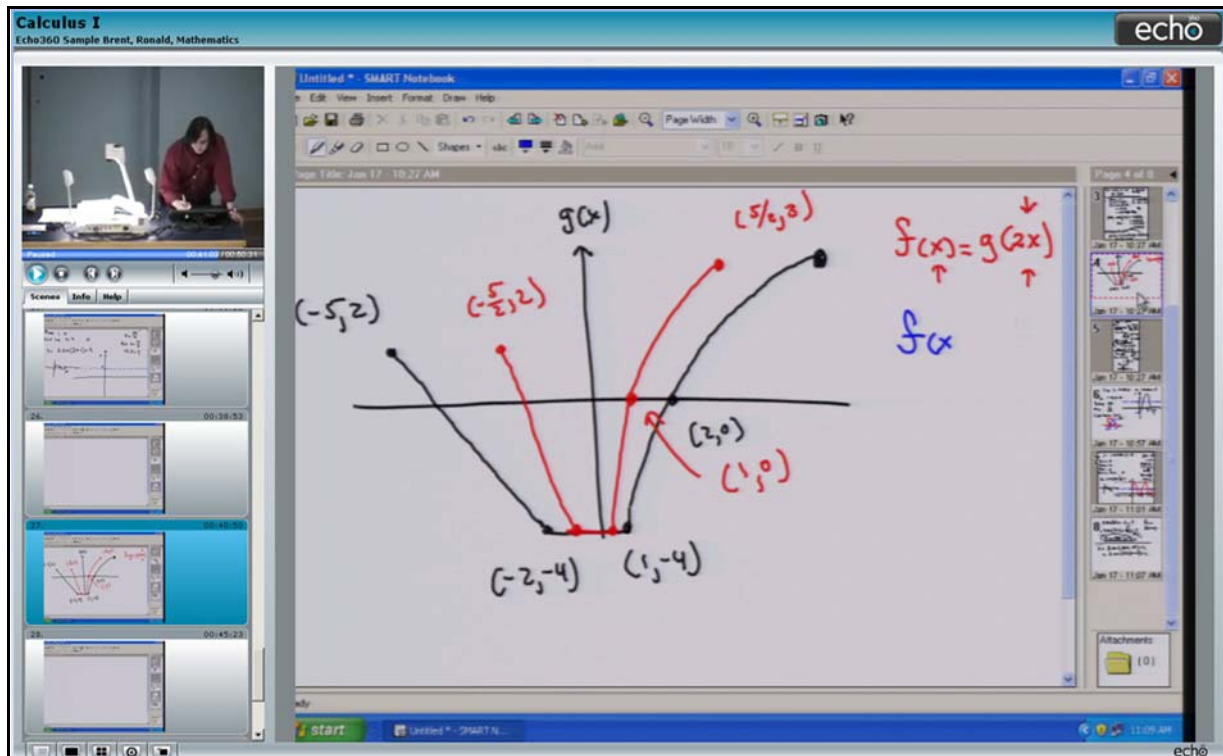


Figure 3 - EchoSystem multimedia interface



Figure 4 - EchoSystem capture appliance

### **Arguments for EchoSystem:**

- Powerful capacities of managing numerous recorders in different lecture rooms remotely
- Decent capacities of monitoring numerous recorders remotely
- Integrates easily with existing audio/video-equipment and control systems.
- Flash based player, which makes the system support all platforms.
- Powerful integrated scheduler which automates recording and publishing.
- Flexible user management
- Less expensive than some of the competitors
- Great support for podcast formats
- Decent activity reporting and statistics
- Dedicated recorder appliance with audio, video and VGA capture
- Recorder software available, which makes it possible to record and publish lectures from a regular computer (this software does not support VGA-capture, only screen capture)

### **Arguments against EchoSystem:**

- No integrated content management system
- No support for live-events
- Poor editing capabilities
- Poor support in Norway



### Alternative 3 - Accordent Capture Stations and AMMS from Accordent Technologies

Accordent Technologies has different solution for webcasting. This case has focused on the Accordent Capture Station (capture appliance) and AMMS (Accordent Media Management System). The AMMS is server software which makes it possible to manage numerous Capture Stations, schedule recordings and manage recordings.

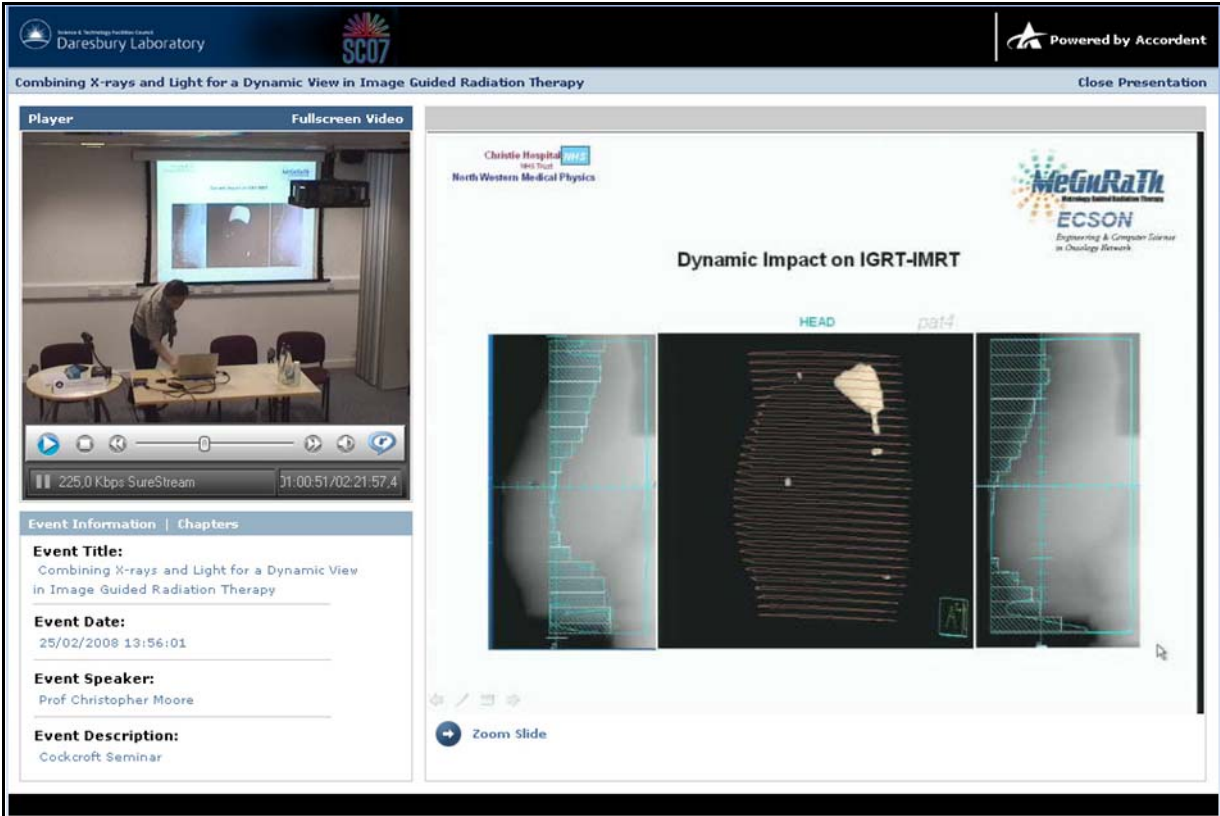


Figure 5 - Accordent multimedia interface



Figure 6 - Accordent Capture Station (Mobile version)

### **Arguments for Accordent:**

- Powerful capacities of managing numerous recorders in different lecture rooms remotely
- Powerful integrated scheduler which automates recording and publishing.
- Integrates easily with existing audio/video-equipment and control systems.
- Powerful content management system with integrated access control
- Flexible user and presenter management
- Powerful activity reporting and statistics
- Dedicated recorder appliance (both room-based and mobile) with audio, video and VGA capture
- Great support for podcast formats
- Powerful editing capacities
- Support for both Windows Media and Real video streaming
- Also support for software recorders (limited capture options)

### **Arguments against Accordent:**

- Poor capacities of monitoring recorders remotely
- Expensive capture appliances, server software and support
- Poor support in Norway

## Alternative 4 - Tegrity Campus 2.0 from Tegrity Inc.

Tegrity differs from many others solutions because it has a Web Service architecture so that the recordings can be done on any computer which has access to the service via network or internet. Tegrity requires no specialized hardware or software to be installed.

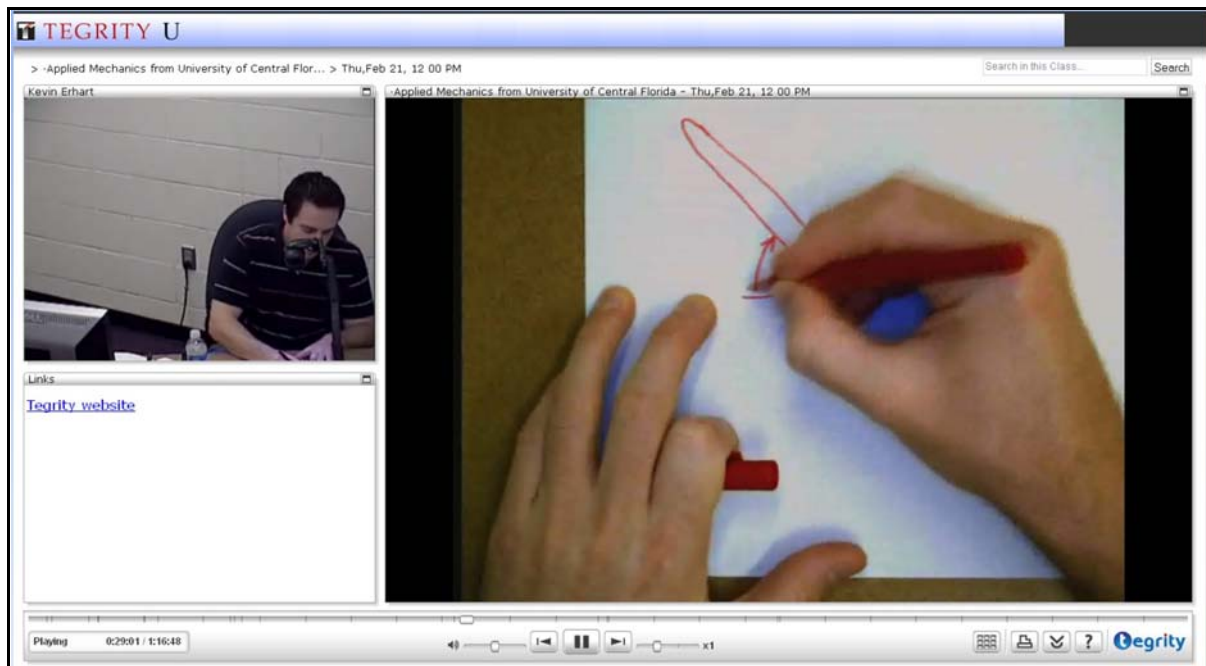


Figure 7 - Tegrity multimedia interface

### Arguments for Tegrity:

- Web Service architecture
- Recordings can be done on any computer on campus
- Powerful portal which manages recordings, users and more
- Powerful "search anything technology" which allows text in PowerPoint slides or websites to be searched within a lecture or within the portal.
- Great support for podcast formats
- Easy deployment on campus
- Low cost of ownership

### Arguments against Tegrity:

- The fact that Tegrity requires no specialized hardware may also be a disadvantage in a classroom where the system is set up to record scheduled presentations. In this environment the system also has to interact with various sources, for example document cameras, Smartboards, video players or laptops. In order to rely on a set-up like this, a specialized hardware may actually be an advantage.
- Tegrity licenses Campus 2.0 as an annual subscription. This means low cost of ownership, but it also means that institutions have to keep paying the annual subscription in order to record and host presentations. The license is based on FTE students.
- Poor support in Norway

## Conclusion

At first glance, several of the alternatives work similarly. However, when studying the details of the systems, more differences appeared. Generally we experienced that many of the preferred features were not available on all systems. A typical issue was as following: system A supported a significant feature, while system B did not and vice versa. As a consequence, price vs. functionality became an important argument. However, the price was not easy to calculate precisely because it often depended on number of systems. The vendors often offer less expensive prices when opting for several systems.

The first system to disqualify was Tegrity, mainly because its architecture and annual subscription license. Secondly, Accordent disqualified mainly because its price. The Accordent system is based on Accordent Media Management System (AMMS) which is very expensive and also has a very expensive annual license. EchoSystem is less expensive than both Accordent and Mediasite and still has a lot of the same features. The major drawback of EchoSystem was the lack of live streaming and content management system. Even though both Accordent and EchoSystem turned out to be interesting options, Mediasite finally became the system of choice. Mediasite definitely appeared as the most complete system, and had most of the preferred features.

## Implementation

The implementation of Mediasite at the University of Stavanger included two main steps: 1) installation of server software and 2) installation in lecture room.

The basic architecture of the Mediasite system is the server which manages several recorders. The server communicates with the recorders via network. The IP addresses of the recorders are registered on the server so that the server is capable of remotely controlling recorders based on schedules. The recorders can also be remotely operated by using the web interface or locally operated like a normal computer. Presentations can be manually or automatically published to the server for live or on-demand viewing.

### Installation of server software

Mediasite Server is the central component of the Mediasite system. The server makes it possible to host and stream Mediasite presentation. In addition, recorders, schedules, presentations, users, presenters, catalogs, players etc. can be managed from the Mediasite portal of the Mediasite server. The software installation has a couple of technical requirements and also needs Windows Media Services in order to stream presentations. Since the server was installed on existing server architecture at the university, the installation was done by IT technicians. Once the server was installed, the Mediasite system was ready to be managed and connected to Mediasite recorders.

### Installation in lecture room

One of the main issues of this case study was to make the process of webcasting less expensive and time-consuming. By taking advantage of the powerful scheduling feature of the Mediasite system, the idea was to make the lecture room completely automated and remote-controlled.

The following was setup was installed in a lecture room at the University of Stavanger: The Mediasite Recorder was connected to the Crestron audio- and video-system in the lecture room. This included VGA from various sources like podium PC, laptop and document camera and audio from microphones, computers and video-players. The recorder was also connected to a video-camera mounted on the ceiling of the room. In order to be able to remotely control the video source, an IP-camera was chosen. This setup made it possible to remotely control both the recorder and the camera. By scheduling the start and stop of the recordings in the Mediasite system, this setup made it possible to record and publish video, graphics and audio without any manual work or processing.

This setup makes it possible to manage, control, and monitor several similar lecture rooms on campus via network from a single computer or control room. This architecture has the potential of increasing the production of webcasts dramatically.