

# CAMEDA

## Customized and Adaptive Media Delivery Architectures

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Traditional print publishers, such as newspaper or print magazine publishers, suffer from an ongoing decline of subscriptions and sales in the current digital media era. The same can also be observed for specialized publishers: for instance, the IEEE Computer Society observes a constant decline in subscriptions for magazines such as IEEE Software. At the same time, the number of subscribers to blogs, videolectures, podcasts is increasing.

Our hypothesis is that this has various reasons including:

- Content is more and more requested to be delivered in a push-oriented style or on-demand. The content should be with the consumer during idle times, e.g. on a train or metro ride, without thinking of a prior download.
- Content is more and more requested to be delivered or presented in smaller chunks of information. Only, if the initial chunk of information is interesting, people would like to look into the rest of the content.
- People require different forms of content, depending on the device. For instance, individuals interested in research material on a specific topic, may require a scientific article, a conference presentation, a blog post or podcast, or a video of the conference presentation.
- The traditional ways of finding relevant information e.g. by browsing the content and searching for the content using search engines, are considered tedious, especially on small devices with low bandwidth. Instead of browsing and search, there should also be the possibility to get relevant pieces of information in small chunks – much like today's blogs. We propose to generate this information in a personalized fashion automatically.
- Content should be presented on the wide range of current mobile devices in a suitable fashion. Examples of such devices include Kindle, iPad, mobile phones, laptops. Content can also be presented on smartboards and interactive tables. As these devices offer a broad range of input and displaying capabilities, content adaptation is needed to suit better the device that is currently used.
- Content is more often expected – like most web pages – to be free.

Current print publishers have a difficult time meeting these requirements. They focus on high quality content, and their business model focuses on making

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money by delivering the content. Today mostly the whole newspaper or magazine has to be downloaded. Then, the whole newspaper or magazine must be browsed in order to find the relevant information. The user has to buy or download the newspaper or magazine (or articles) in advance, and pay for all information bundled. In case it is possible to download selected articles, the consumer must browse the available content beforehand (usually at non-idle times). New devices are nowadays only poorly supported, and usually only a few selected devices are supported, not the whole range of them.

CAMEDA will address the problem of transitioning publishing into digital era by developing:

- A library of architectural solutions for personalized delivery of content to from content providers to the end users
- A decision support framework that will help content providers to analyze trade-offs between possible solutions and make an informed decision
- Tool support for high-level and low-level modeling of customizable and adaptive media delivery architectures
- Tool and language support allowing non-experts to create mashups for content delivery
- Support for ad-hoc and runtime content adaptation and automatic adaptation of corresponding architectures
- Plug-ins and algorithms for enabling end-to-end distribution and blending of various 3D, immersive and interactive media on the move, at home, or at work

As the result, we expect the following benefits:

- Users can get interesting and diverse content on their devices in small chunks and get more if they are interested
- Content providers are able to deliver their content to target audience using a set of proposed architectural solutions without thinking about the delivery means
- Dynamic adaptation of content to user context in 3D, immersive and interactive environments such as location-specific augmented reality games or lifelong learning

Issues to be addressed:

- How can we keep the content free and interesting at the same time?
- How do we ensure that users get content only when it is required and the content is interesting for the users?
- How do we ensure the sustainability of the platform (who hosts the infrastructure, business models for content providers and other stakeholders)