Requirements and Properties of Qualified Electronic Delivery Systems in eGovernment: An Austrian Experience

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ABSTRACT

Electronic mailing systems are the dominant communication systems in private and business matters. Public administrations deliver documents to citizens and businesses—subpoenas, legal verdicts, notifications, administrative penalties, and so forth. However, official activities are more strongly bound to legal regulations than in civil law. Delivery of crucial and personal documents raises the demand for qualified identification and non-repudiation services as featured by registered and certified mail in the paper world. Legal requirements for electronic delivery carried out by public administrations (eDelivery) cannot be fulfilled by standard mailing systems. Although the requirements for eDelivery systems may differ due to national legal regulations, this paper discusses common requirements and properties on an abstract level. Moreover, the author shows how these requirements have been addressed by introducing the Austrian eDelivery system for eGovernment applications.

Keywords: Certified E-Mail, Document Exchange, eGovernment, Electronic Delivery, Non-Repudiation, Registered Mail, Security

INTRODUCTION

Electronic mail (eMail) has become the most popular communication method in our daily life— we are used to write and receive eMails when communicating with friends, families, relatives or even in business matters when submitting contracts or bids. This has been confirmed by a survey (Statistik Austria, 2008) reporting that about 90% of active internet users in Austria are using the internet for communication purposes.

Electronic communication is of great importance not only in the private and business sector. The delivery of documents such as notifications, administrative penalties, permits and laws, is a fundamental and resource-intensive task for governments and public administrations. For instance, the Austrian Treasury and Ministry of Justice deliver more than 44 million documents each year. The transition to electronic delivery systems (further denoted as eDelivery systems) is a key requirement towards service-oriented
architectures in eGovernment. Electronic delivery has still to be considered as a value-added service and will not replace paper-based delivery at least for the next decades. Reduced costs associated with delays and saving paper, 7 x 24 availability and improved accessibility are the promises. Document delivery is one of the last steps in public proceedings and raises the demand for an electronic counterpart in order to avoid media-breaks for processes carried out fully electronically.

Due to the high penetration rate, eMail seems to be the first choice when looking for communication channels serving different kind of transactions – from citizens to administrations (C2A), administrations to citizens (A2C), businesses to administrations (B2A), administrations to businesses (A2B) as well as administrations to administrations (A2A). However, eMail does not have the same evidential quality as registered or certified mail does in the paper world. There is a lack of essential security requirements like integrity, confidentiality, non-repudiation and a qualified sender or recipient identification. In the same way as confidentiality can be ensured through the use of mail extensions like S/MIME or PGP, the research community has focused on several security and cryptographic value-added services ensuring the evidential eMail document exchange between senders and recipients. These extensions are known under the term Certified Electronic Mail (Oppliger, 2004).

In contrast to the private sector, official activities are more strongly bound to legal regulations than in civil law and applied tools and technologies have to be almost legally regulated. Especially the justice sector requires a recipient to prove her identity in a qualified way when receiving crucial documents. A typical example is a subpoena, a written command to a person to testify before a court. A signed proof of receipt guarantees that a recipient has picked up the delivery at a certain point in time and thus is valid evidence in public proceedings.

Several EU member states have already recognized the need for legal regulations concerning administrative deliveries. A number of domestic laws and regulations have been enacted in the last years providing the basis for qualified eDelivery systems. Austria has introduced its eDelivery system early in 2004. Looking at the national level of other EU member states, there are similar initiatives such as the Posta Elettronica Certificata (PEC) (Gennai, Martusciello, & Buzzi, 2005) in Italy, the Secure Mailbox System in Slovenia, the DigiDoc Portal in Estonia or the upcoming DE-Mail (DE-Mail, 2009) system in Germany (2010). From a local point of view, several Austrian ministries have launched a closed mailing system, e.g. the Austrian eDelivery system for legal relations (ERV) (Ornetsmueller, 2009) provided by the Ministry of Justice or the eDelivery system for communications with tax authorities (FinanzOnline - DataBox) provided by the Austrian Treasury.

Although the mentioned eDelivery systems are based on different national legal regulations and thus are implemented in different ways, this paper discusses common requirements on an abstract level. This is essential when going the path towards interoperability, especially in a pan-European context. With the approaching deadline of the EU Services Directive (Council of Europe, 2006) by the end of 2009, cross-border document exchange gets on the agenda of all EU Member States. This directive will require public administrations to send documents to service applicants in a qualified and evidential way, potentially to a system located in another Member State. Therefore, in the remainder of this paper we define a classification scheme or taxonomy of eDelivery systems by identifying common requirements as a basis for a harmonized framework towards interoperability. In Section 2 we introduce and discuss the term qualified eDelivery system. We further discuss common architectural aspects of eDelivery systems from an abstract point of view. In Section 3 common requirements and properties of eDelivery systems are discussed. Although these requirements and properties are specific to eGovernment, some can be found in the private sector as well. We continue in Section 4 with discussing the Austrian electronic
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