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Postboks 8004 Dep
0030 Oslo

Nasjonalt kompetansesenter for fri programvare
Grønland 58 Papirbredden
3040 Drammen

Innspill til høring - Forslag om innføring av obligatorisk elektronisk faktura i staten

Rapportens anbefaling om å innføre obligatorisk efaktura til staten vil uten tvil gi store gevinsters. Med bakgrunn i erfaringer fra både Danmark og Sverige kan man med stor grad av sikkerhet si at også kvaliteten og effektiviteten i transaksjonshåndteringen vil bedres radikalt. Friprogsenteret mener et slikt system med obligatorisk elektronisk faktura med fordel bør innføres i hele offentlig sektor, da det vil gi fornyingsgevinsters og ikke minst vil være positivt i et miljøperspektiv.

Rapporten viser i kapittel 10 til erfaring utvikling i både Sverige og Danmark samt andre europeiske land. Arbeidet med å hente kunnskap og erfaringer fra andre land blir også viktig i det videre arbeidet. Danmark har utviklet programvare som er fritt tilgjengelig for å forenkle innføringen både for offentlige virksomheter og leverandører av fakturagrunnlag. Rapporten viser til en mulig offentlig fakturaportal som vil dekke noe av dette funksjonelle området. Friprogsenteret mener man må vurdere utvikling av lignende løsninger for efakturaer som skal gå fra maskin til maskin, i praksis en integrasjonstjeneste. I tillegg vil vi påpeke at det vil gi store samfunnsøkonomiske gevinsters om man benytter allerede eksisterende eFaktureringssystem og tilpasser dette til norske forhold. I så måte vil vi anbefale at den danske modellen og løsningen Nemhandel benyttes også i Norge. Friprogsenterets klare anbefaling er at man benytter denne løsningen, da det også vil være kostnadsbesparende i tillegg til at det vil gi en gjenbrukseffekt av allerede utviklet løsning.

Vi mener arbeidet for å gjøre ordningen obligatorisk for kommunesektoren blir viktig. Kommunene står alene for et stort antall transaksjoner med et betydelig potensiale for innsparinger. Utvikling av programvare som gjør overgangen enklere vil for kommunesektoren være et sentralt element for å gjøre en slik overgang på best mulig måte, dette med bakgrunn i at den enkelte kommuner skal slippe å utvikle eller kjøpe lisenser på en programvare som vil være standard for alle kommunene.

Når man fra statens side skal utvikle programvare, vil det i de fleste tilfeller være naturlig å vurdere fri programvare. Når man skal spesielt utvikle en løsning, som i dette tilfellet, vil både plattformvalg og sluttproduktet være naturlig å vurdere opp mot fri programvare. Det bør samtidig være en forutsetning at systemet dokumenteres for reellt gjenbruk og at systemet og koden i ettertid deles på en offentlig delingsplattform, eksempelvis delingsbazaren.no. Slik kan andre offentlige etater og organisasjoner, nasjonalt og lokalt, få nytte av hele eller deler av tjenesten. Slik oppnås også samfunnsøkonomisk lønnsom drift av offentlig sektor.

Vedlagt følger en presentasjon av den danske løsningen Nemhandel som Friprogsenteret mener FAD bør vurdere å oversette til norske forhold.

Med vennlig hilsen

Heidi A. Austlid/s/
Direktør

Christer Gundersen/s/
Utviklingsleder

The eFaktura case: 200 billions EUR saved by using a repository style development

Morten Kristoffer Hansen
**Head of section, National Software Knowledge
Centre, National IT & Telecom Agency**

**Open Nordic Conference
June 19th 2008**



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Technology and Innovation

- This is the story about what is probably the largest open-source software project in the public sector anywhere
- This is not only a story about deploying open-source, but also about engaging and developing it and working with the global OSS community along the way



Background

Electronic invoicing in the public sector a key driver for the initiative

Suppliers required by law to send all invoices to the public sector electronically (approx. 1.3 mill. invoices per month)

Infrastructure also open to private companies for B2B exchange of business messages



Project scope

Users:

- 200.000 small and medium sized companies
- All public sector institutions
- 15 European countries in 2012

Business case:

- Est. savings DK public sector 2008: 10m €
- Est. savings DK private sector: 133m € per year (600m € in 2012)
- Est. Savings 200b € in PEPPOL in 2012



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Requirements

Primary focus in development process was company needs – not public sector needs

**“It has to be easy,
very easy.
As easy as sending email!”**

But it must also be secure, flexible, compatible with international standards and free from it-vendor lock-in.



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So why haven't you heard about it?

- 1) Enterprise software isn't sexy
- 3) Middleware is even less sexy
- 5) Microsoft and IBM is not fighting each other on this one

PROGRESS, INNOVATION AND COHESION

Strategy for Denmark in the Global Economy
– Summary



The Mission:

A national Internet based infrastructure will be established. It will make it possible for companies to exchange business documents (for instance electronic invoices) in a simple, inexpensive and secure way - via the Internet. The infrastructure must be build in open collaboration with private IT-suppliers. The infrastructure must be ready for use in 2007.

Launched, 8th October 2007



But that wasn't quite challenging enough

- So we decided, that the infrastructure should be build completely around open-standards and OSS components
 - And supported by all the major it-vendors
- Utilizing state-of-the-art Service Oriented Architecture and web-services
 - Adding SMTP into the mix, for the first time ever in SOA
- Using a new type of digital certificates validating and authenticating all transactions
- And finally be as easy to use as e-mail for the average small and medium sized Danish company



But why middleware and e-business?

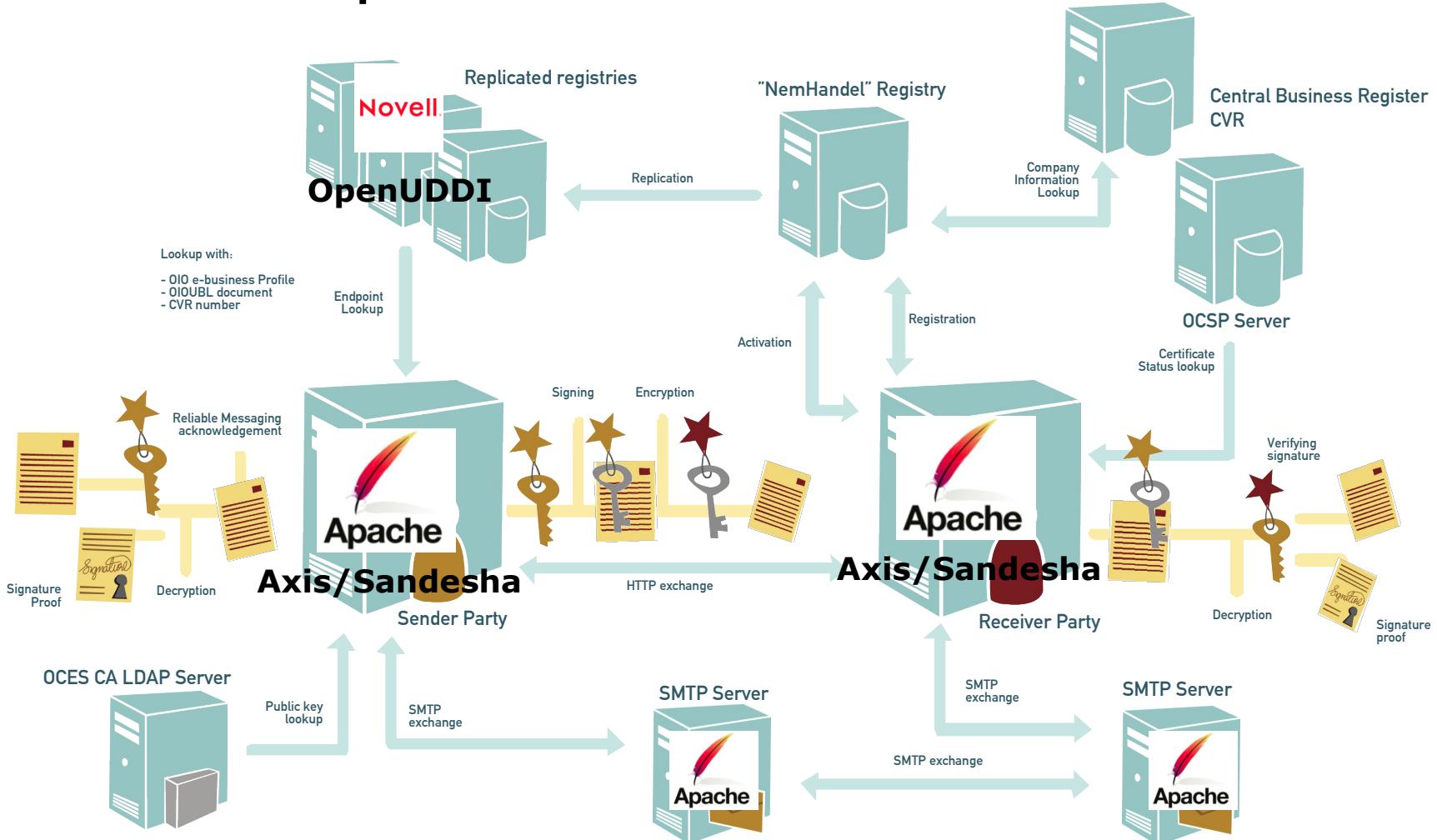
- Because the infrastructure for business is the single most important channel for the Danish economy
- We have 95% small and medium sized companies in Denmark, if we don't create open standards for trade and b2b e-business Walmart will help them out and it will not be open
- Every year Danish companies transfer half a billion business invoices and orders, the estimated savings is 600m € to switch to electronic business documents
- We want everybody to be able to participate in the electronic economy, what better way than open-source and open-standards?



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The open e-business framework

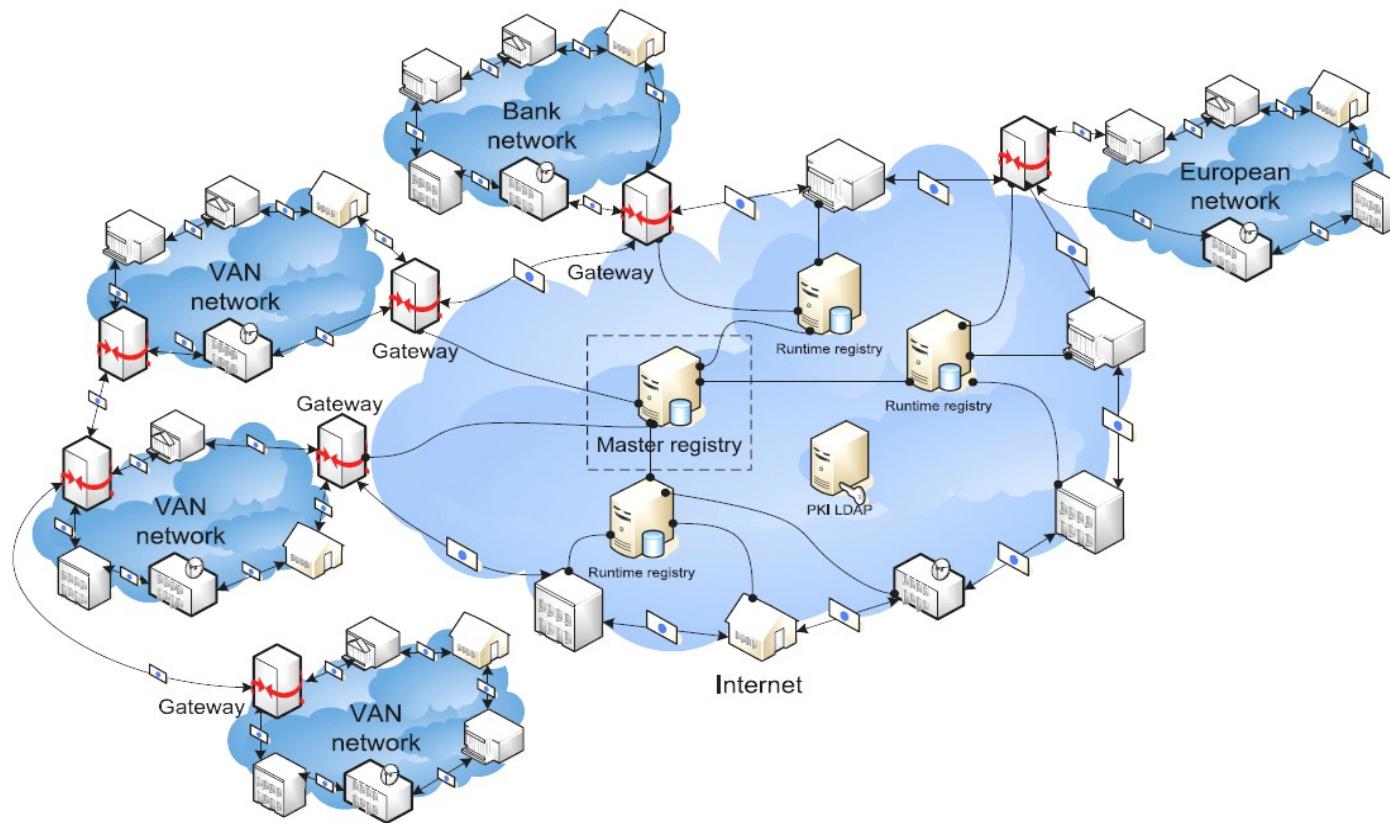




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The infrastructure





The components:

- OpenUDDI developed in partnership with Novell and EOS Trifork, released as open-source on the MPL license
- The Apache Sandesha/.NET message handler developed in partnership with Apache and WSO2, released as open-source on the MPL license
- The reference client built on .NET WCF released as open-source on the BSD license
- A Java based reference client, to be released under the BSD license



The standards:

- RASP: Reliable Asynchronous Secure Profile, the first web-service profile able to use both HTTP and SMTP(email) as transport layer, effectively turning SMTP into a giant enterprise service bus for a whole country
- UBL: Universal Business Language, a new XML dialect co developed with Sun, SAP, IBM, China, USA and all the North European countries – with Denmark as one of the main contributors and headed by XML guru Jon Bosak, Danish version released under CC.



The reference client

N
Min
Tech

POC klient

Funktioner Opsætning Hjælp

Dokumentmapper

Afsend valgte dokument(er) Slet Vis Udskriv

Type	Dok ID	Til	Adresse ID	Tidspunkt
Faktura	1001	Økonomistyrelsen	CVR 35744796	10-08-2006 08:51
Faktura	1002	Finansministeriet	CVR 63637828	10-08-2006 09:21
Faktura	1003	Globaliseringsrådet	EAN 15396572	10-08-2006 11:15
Kreditnota	75	Erhvervs- og S		08-08-2006 15:43
Kreditnota	76	Skat		08-08-2006 16:11
Ordre	110	Kontorforsyning		07-08-2006 13:00
Ordre	111	IDA-kantine		08-08-2006 10:37
Ordre	112	Frugt distribution	EAN 81321629	09-08-2006 11:59

Udgående dokumenter

- Ikke afsendte dokumenter (8)
- Under afsendelse (1)
- Kvitterede (250)
- Returnerede (0)

Indgående dokumenter

- Indbakke

Slettede dokumenter

Afsend Vis Slet

Vis hjælpetekst

8 dokumenter



The Java reference client

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IOISI RASP Client

Functions Settings Help

Document folders

	Send chosen documents	Delete	Show	Print		
Destination	Destination...	DocumentTy...	TimeCreat...	MessageIdent...	UniqueD...	Docume...
Tavleverandøren	579800041...	ApplicationM...	15/05/08 0...	6ad26bf3-6f3...	c5ae165...	4326
Den Lille Skole	DK163567...	CreditNote	15/05/08 0...	6aeaf498-c16...	2559e39...	8698
Den Lille Skole	DK163567...	Invoice	15/05/08 1...	a7ca0f48-dc0...	ba9ec21...	8825

Folders

- Outgoing documents
 - Not sent (3)
 - Being send (1)
 - Receipts (0)
 - Returned (0)
- Incoming documents
 - Inbox (0)
 - Deleted documents (0)

3 Document(s) Restart the System



So why didnt this giant project fail?

- We used the open-source method:
 - Early end-user involvement
 - Many iterations
 - Agile development teams
 - Engaging the community
 - Talking to OSS people all over the world
 - Going straight to the source, instead of middlemen: Apache, Novell, Microsoft, Sun, IBM etc.
 - Making sure that our suggestions and changes flowed back into the core OSS products
- We found common ground for both commercial and OSS groups, showing both parties, that it isn't about "OSS or commercial software" but "OSS *is* commercial software"



Extending engagement: Ibiz-center.dk

- It is not enough to deliver the core technology, companies need help and guidance in regard to e-business and OSS
- The Ibiz centre is tasked with:
 - Helping and guiding Danish companies about e-business
 - Helping IT-vendors to understand and implement our OSS components in their products
 - Tracking which IT-vendors have successfully implemented and interoperability tested their solution with our reference client



Extending even further

Programmer Steder System

Virk.dk - Fakturablancket

Fil Redigér Vis Navigering Bogmærker Faneblade Hjælp

virk.dk Virksomheders samlede indgang til det offentlige

Forside Indberetninger Myndigheder Kommuner Digital signatur Hjælp Rettigheder Nyt Om Virk.dk About

» Forside » Myndigheder » IT- og Telestyrelsen » NemHandel Fakturablancket » Fakturablancket

IT- og Telestyrelsen: Digital indberetning

Fakturablancket

NemHandel - Opret Faktura (Beta version)

Felter markeret med * skal udfyldes.

Fakturamodtager

EAN-nummer 5798000416642
Myndighed eller institution *

Vejnavn * Husnummer

Postnummer * By *

Leverandør

CVR-nr. * ?

- hvis du ikke har et CVR-nr., skal du angive dit CPR-nr. her: ?

Navn *

Vejnavn* Husnummer

Postnummer* By*

Tel. Telefonnummer* E-mail-adresse
mokh@itst.dk

Fakturadato m.v.

Fakturanummer * Fakturadato (dd-mm-**9999**) * ? Leveringsdato (dd-mm-**9999**) ?

Morten Kristoffer Hansen

tor 19. jun, 01:00



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The Fakturablanket / Invoice Form

- 3 months in development
- 300.000,- DKK
- The 3rd largest service on virk.dk
-
- Useful for occasional trade with the public sector



Extending it even more?

Søg Handling Indstiller

Alle Alle Søg

Dokumenter Connector Søg

Dokumenter

Favorit

- Modtag
- Faktura
- Kreditnota
- Applikationsmeddelse
- Ordre
- Ordrebekræftelse simpel
- Fykker
- Katalog
- Katalog slet
- Katalog artikelopdatering
- Katalog prisopdatering
- Katalog anmodning
- Ordre sletning
- Ordre ændring

Connectorer

- Connectorer
 - Eksterne
 - Modtag
 - RASP ind
 - Leveret
 - RASP ud
 - Interne
 - Modtag
 - Ind folder
 - Leveret
 - Ud folder

Ind folder

Oprettet	Modtag	Send	Dokument Type	Filnavn	ID
19-03-2008 20:28:51	Green	Green	CreditNote-2.01	Til_NemHandelTest_Ord...	70
19-03-2008 20:08:49	Green	Green	ApplicationResponse-2.01	Til_NemHandelTest_Ord...	62
19-03-2008 20:05:48	Green	Red	OrderResponseSimple-2.01	Til_NemHandelTest_Ord...	61
19-03-2008 19:45:46	Green	Green	Reminder-2.01	Til_NemHandelTest_Bil...	50
19-03-2008 19:51:48	Yellow	Green	Invoice-2.01	Til_NemHandelTest_Ord...	52
19-03-2008 19:56:47	Green	Green	Invoice-2.01	Til_NemHandelTest_Ord...	55
19-03-2008 19:59:17	Green	Green	CreditNote-2.01	Til_NemHandelTest_Ord...	57
19-03-2008 20:02:48	Green	Green	Reminder-2.01	Til_NemHandelTest_Ord...	59

FAKTURA

Fakturaafsender

Tavleleverandøren
Leverandørvej 11
DK-2870 Dyssegård
5798009811660 (GLN, EndepunktID)
DK16356706 (DK:CVR)
DK16356706 (DK:SE, Moms)

Kontaktoplysninger

ID: 23456
Hugo Jensen
Tlf. 15812337
E-mail: Hugo@tavl.dk

Fakturamodtager

Den Lille Skole
Fredericiavej 10
DK-3000 Helsingør
5798009811455 (GLN, EndepunktID)
DK11111114 (DK:CVR)
DK16356709 (DK:CVR, Juridisk)
Dimensions konto: 5250124502

Kontaktoplysninger

ID: 7778
Hans Hansen
Tlf. 26532147
E-mail: Hans@dls.dk

Leveringsoplys.

Levering

Leveringsdag: 2005-11-15

Fakturanr: A00095680 **Kobers ordrenr:** 5002701 **Sælgers ordrenr:** **Dato:** 2008-04-01

Linje	Varenr.	Beskrivelse	Antal	Enhed	Enhedspris	Moms	Pris incl	Pris
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start Indbakke - Mic... Internet E... Adobe Photos... Microsoft ... Licens-og leve... Release Altova XMLSpy Microsoft Pow... VAX NemHandel 09:28



Many ways of using NemHandel

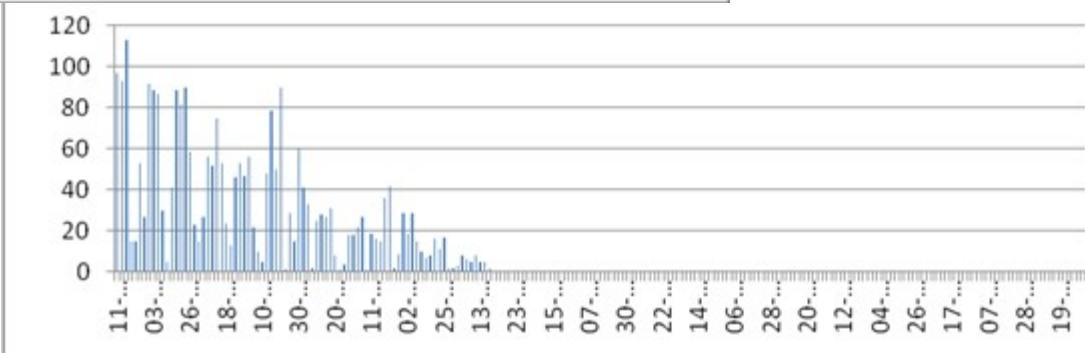
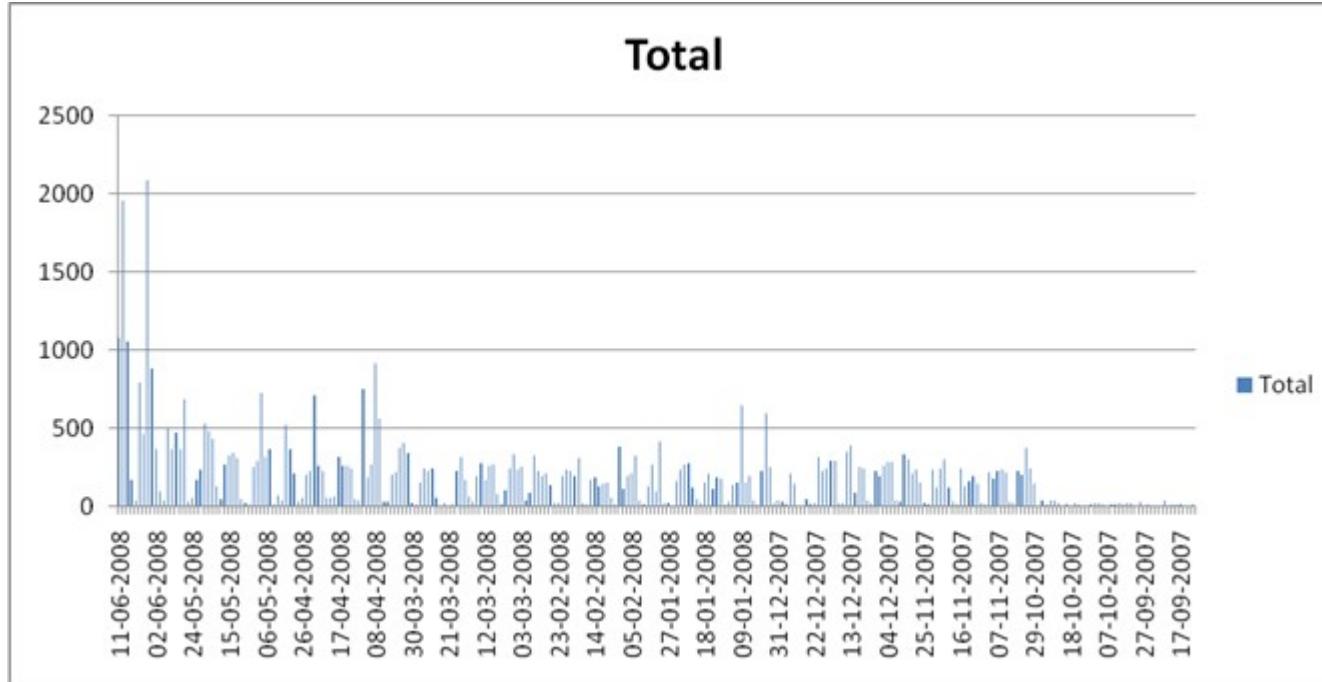
1. Fully integrated in ERP system
2. Partly integrated in ERP system
 - message handler can be used to send invoices.
3. Not integrated in ERP system
 - invoices can be generated using spreadsheet solution and sent using message handler,
OR
 - invoices can be generated and sent using web-based invoice form.



But do you we get any users?

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More information:

- National IT & Telecom Agency (Strategy and policy)
 - www.itst.dk (English and Danish)
- Open e-business framework:
 - www.softwarebørsen.dk (in Danish – soon in English too – all technical information in English)
- E-business centre for aiding Danish companies
 - www.ibiz-center.dk (currently Danish)
- Danish version of UBL standard for e-business documents:
 - www.oioubl.info (English and Danish)
- North European version of UBL
 - www.nesubl.eu (English only)
- Sourceforge soon to come...

> Softwareprojekter
- Serviceorienteret
Infrastruktur (OIOS)
- Forum
- Kalender
- Information
- NemHandel
- Serviceorienteret
Infrastruktur: WS
Profiler
- Serviceorienteret
Infrastruktur: RASP
.NET
- Serviceorienteret
Infrastruktur: RASP
Java
- Serviceorienteret
Infrastruktur: RASP
.NET
- Serviceorienteret
Infrastruktur: RASP
Java

Du er her: [Forside](#) » [Projekter](#) » [Softwareprojekter](#) » Serviceorienteret Infrastruktur (OIOS)

Serviceorienteret Infrastruktur (OIOS)



Kort projektbeskrivelse

Serviceorienteret infrastruktur er det tværgående arbejde med SOA infrastruktur i den offentlige sektor. Herunder findes alle komponenter, som er tilgængelige som eksempler eller udviklede. Ligesom der er mulighed for at indbetragte fejl i koden eller finde leverandører der supporterer eller leverer løsninger til de forskellige komponenter.



[Klæm billede \(klik for større billede\)](#)

[Yderligere information](#)



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Questions?

nemhandel@itst.dk



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NemHandel – literally 'EasyTrade'

An open national e-business framework



Cathrine Lippert, Communications Adviser
Centre for Service-Oriented Infrastructure (CSI)
Danish National IT & Telecom Agency



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Background

Uses a national shared Service-Oriented Infrastructure based on open standards

Based on government controlled replicated UDDI registries and interoperability profiles

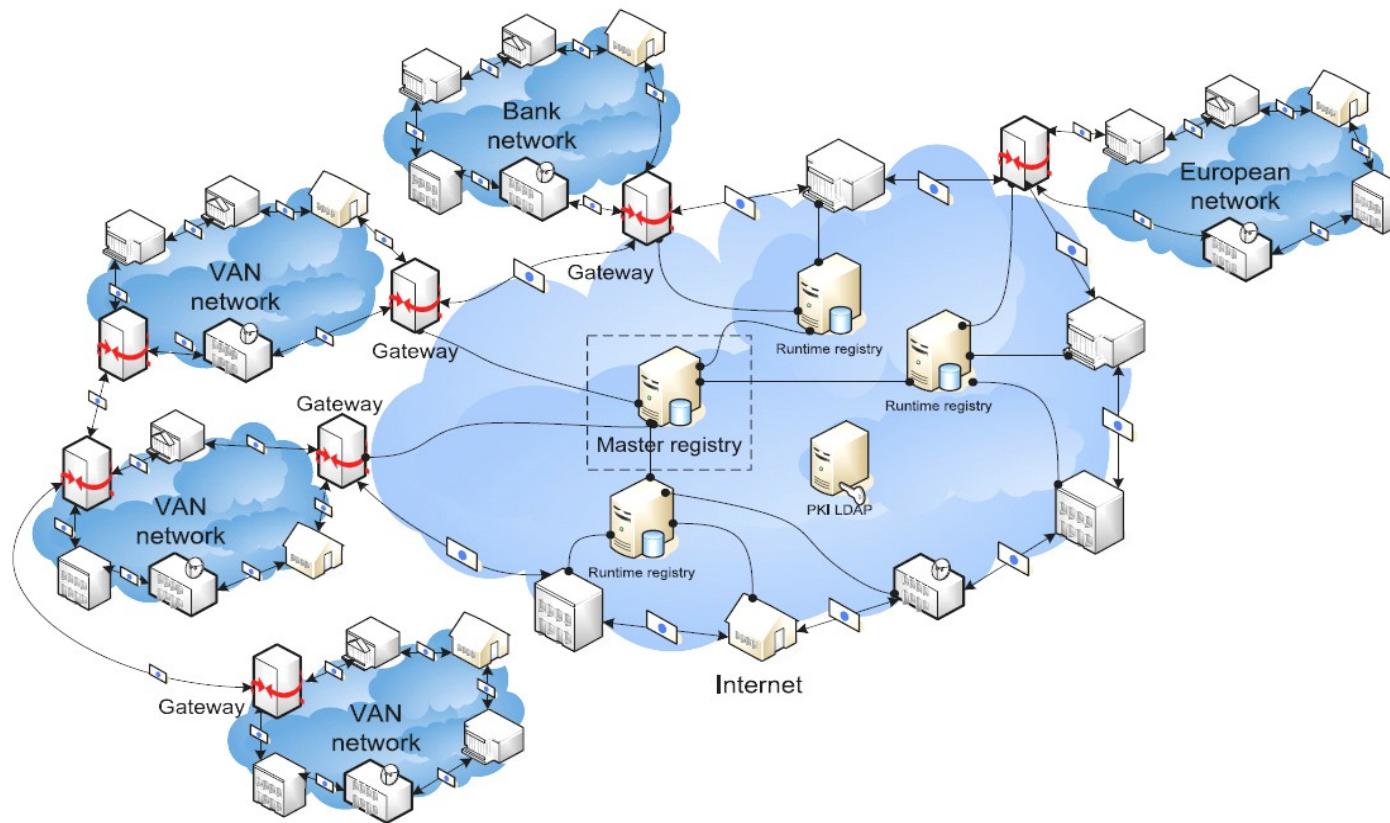
Will support reliable, secure and asynchronous exchange of messages across heterogeneous networks, including the internet



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The infrastructure





Electronic Invoicing

Electronic invoicing in the public sector a key driver for the initiative

Suppliers required by law to send all invoices to the public sector electronically (approx. 1.3 mill. invoices per month)

Infrastructure also open to private companies for B2B exchange of business messages

Recent report from KPMG demonstrates total economic potential of 630 mill. Euro through digitalisation of business processes in small and medium-sized companies



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Requirements

Primary focus in development process was company needs – not public sector needs

“It has to be easy, very easy. As easy as sending email!”

But it must also be secure, flexible, compatible with international standards and free from it-vendor lock-in.



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Result



The result was NemHandel - literally, 'EasyTrade'

- As easy to use as sending email
- Secure – electronically signed and encrypted documents
- Flexible – can be integrated in other IT systems
- Compatible with international standards
- Open standards – no IT vendor lock-in

NemHandel is a **method** of business document exchange based on open standards.



Key elements

Open national e-business framework, NemHandel, built around 5 key elements:

- An addressing mechanism for service lookup
- A web service profile of standards
- An Open Source software toolkit
- A reference implementation of a message handler
- A legal framework



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NemHandel – how it works



UDDI registry

What: e-Invoice

Where to: small@business.dk

How: NemHandel, Digital Signature or EAN/GLN



Company A

Invoice, encrypted and signed
What('where to, delivery how?')

Signed receipt



Company B



Many ways of using NemHandel

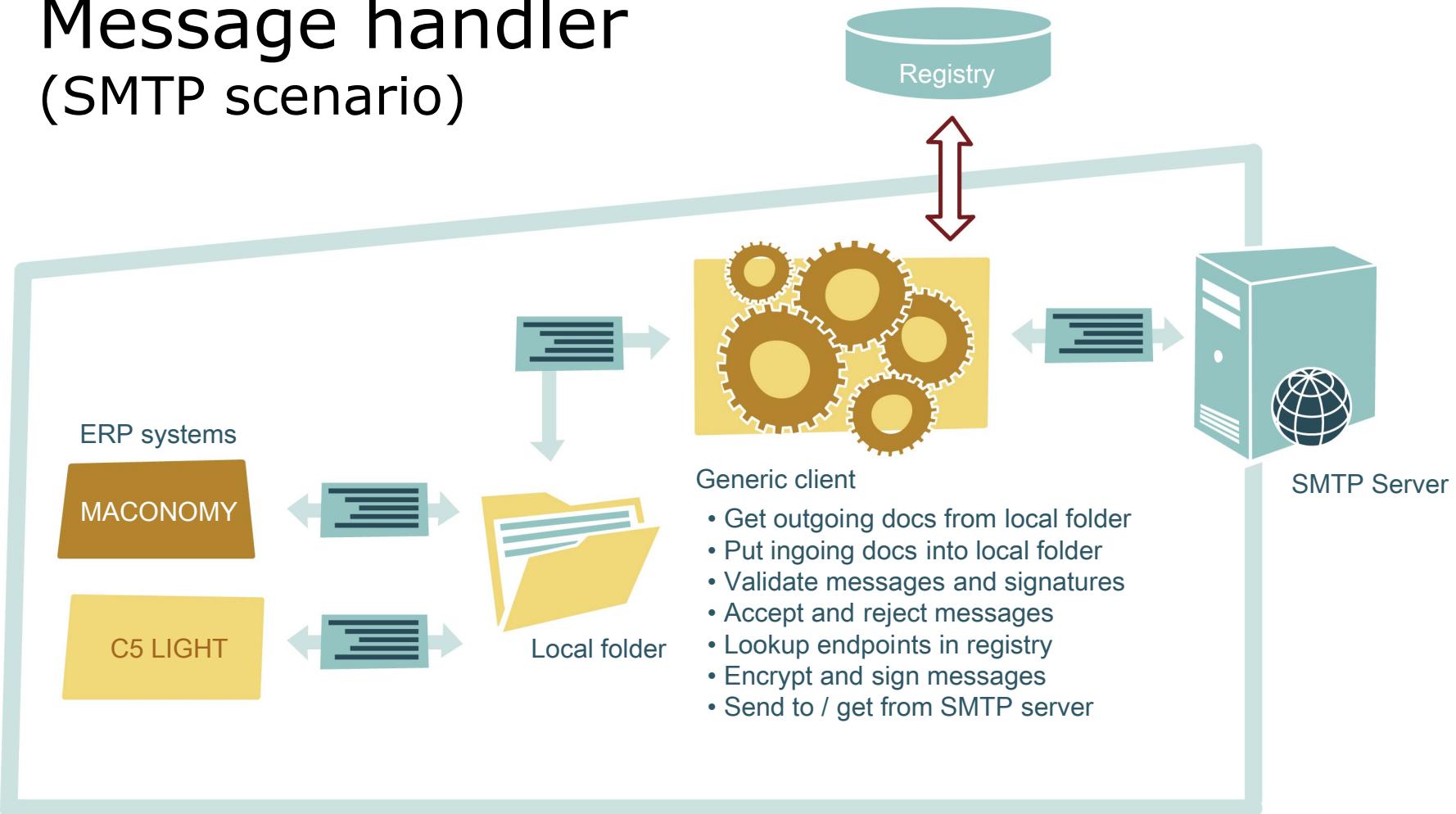
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Message handler (SMTP scenario)



Generic client

- Get outgoing docs from local folder
- Put ingoing docs into local folder
- Validate messages and signatures
- Accept and reject messages
- Lookup endpoints in registry
- Encrypt and sign messages
- Send to / get from SMTP server



Message handler - a simple client

POC klient

Funktioner Opsætning Hjælp

Dokumentmapper

Udgående dokumenter
-> Ikke afsendte dokumenter (8)
-> Under afsendelse (1)
-> Kvitterede (250)
-> Returnerede (0)

Indgående dokumenter
-> Indbakke

Slettede dokumenter

Afsend valgte dokument(er) | Slet | Vis | Udkriv

Type	Dok ID	Til	Adresse ID	Tidspunkt
Faktura	1001	Økonomistyrelsen	CVR 35744796	10-08-2006 08:51
Faktura	1002	Finansministeriet	CVR 63637828	10-08-2006 09:21
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Ordre	111	IDA-kantine		08-08-2006 10:37
Ordre	112	Frugt distribution	EAN 81321629	09-08-2006 11:59

Afsend
Vis
Slet

Vis hjælpetekst

8 dokumenter



Invoice with stylesheet

POC klient

Funktioner Opsætningsværktøj

Dokumentmapper

- Udgående dokumenter
 - Ikke afsendt
 - Under afsendelse
 - Kvitterede
 - Returnerede
- Indgående dokumenter
 - Indbakke
- Slettede dokumenter

Afsend dokument Slet Udkriv faneblad Luk vindue

Status: Ikke afsendt Dokument sti: c:/økonomi/fakturaer/1001.xml

Dokument **Statusinformation**

Customer
Økonomistyrelsen
SE12345678
Street Name 12
DK-1234 City Name

Delivery
Street Name 12
DK-1234 City Name

Faktura
Company Name A/S

Invoice number 1001
Issue date 10-08-2006
Contract/order 1234
Delivery date 2006-01-01
All amounts in DKK
Payment means Cash

Item	Quantity	Unit price	Total
FE-Element type 12345-67	10 pcs.	500,00	5.000,00
Eventual extra taxes ReasonCode			0,00
VAT basis			6.000,00
...			...

Vis hjælpetekst

8 dokumenter



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Uses of NemHandel

- Send electronic invoices to any public authority or institution.
- Send electronic invoices to any private company which also uses NemHandel.
- Receive electronic invoices from any private company which also uses NemHandel.



Major advantages

- Invoices comply with NemHandel standards and will be understood by other NemHandel users' systems.
- Invoices are encrypted prior to sending.
- Senders receive a receipt when invoices have reached their destination – similar to recorded delivery.
- Binary state exchange – invoices cannot get lost in transit.



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The future of NemHandel

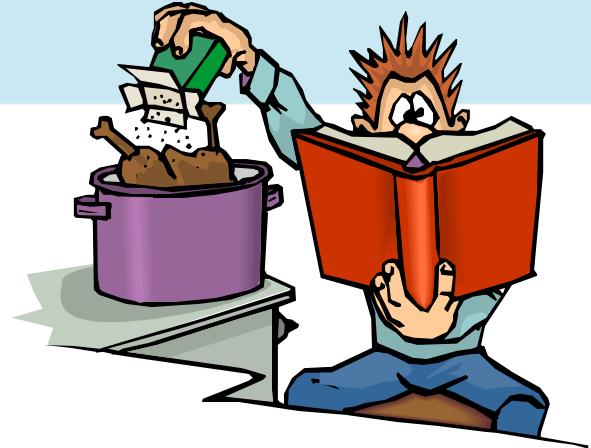
More IT vendors support and integrate NemHandel into their solutions.

Companies may also exchange electronic orders and other business documents using NemHandel.

The Danish National IT and Telecom Agency continues to support NemHandel.



How we did it ...



■ **Technical**

- National authoritative service registry
- Standardisation of a web service profile
- Development of an OSS toolkit which supports the profile
- Reference implementation

■ **Organisational**

- Public sector as a locomotive
- Take advantage of the current window of opportunity

■ **Legal / Legislative**

- Umbrella multilateral contract signed when registering
- Legislation: mandatory electronic invoicing

■ **Cost vs. Benefit**

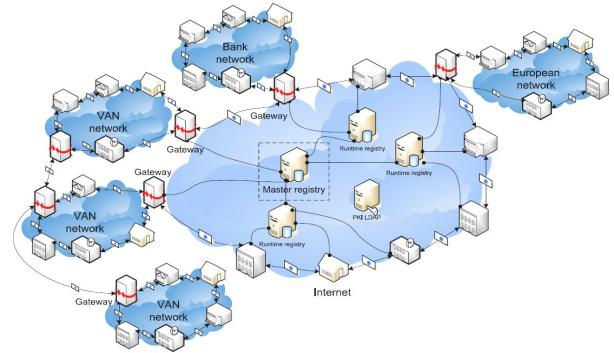
- Start with business transactions that have a good balance between cost and benefit

Communication, Vision, Cooperation, Information, Passion



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Centre for Service-Oriented Infrastructure (CSI) was established 1 December 2006.

CSI is responsible for managing and facilitating the establishment of an open national service-oriented infrastructure.