Next Generation of Identity Aware Applications.

Fulup Ar Foll

Liberty Alliance Technical Expert Group
Master Architect, Global Software Practice
Sun Microsystems.

e-Government Trend

France: Service-public.fr is the French civil service's official gateway. It aims to give citizens access to all administrative information on-line. It has been developed as part of the government's action plan known as "preparing France for entry into the information society".
(Documentation française & Prime Minister's office and the Civil Service and State Reform Ministry.

Norway: The Norwegian Government intends to take the necessary steps to achieve the potentials that are inherent in the ICT and the knowledge society. Stronger coordination, identification of clear areas of investment, and concrete, ambitious--while realistic--goals will create results that really make a difference.
(Morten Andreas Meyer, Minister of Modernization 2005)

Netherlands: Key government agencies and local governments are taking the initiative to develop a single Personal Internet page. Citizens and businesses can use this portal to view their personal data, submit corrections or changes, receive personalized information,and manage their affairs with government in one place.
(Letter of the Minister to Parliament, 10th of April 2006)

eGovernment Problematic

Nothing Exclusive, just problems accumulation.

- Telco-grade scaling
- Bank security requirements
- Limited funding
- Fix cost on five years plan
- Little to no capabilities to impose choice
- Must be vendor neutral
- Any error is a potential political crisis

eGovt Architecture Target

A Citizen-centric view across government

- Information collected, maintained once by the most appropriate agency.
- Information verified to the adequate level.
- Information available electronically through a vendor neutral long-term standard.
- Information exchange securely to whomever requires it, in a privacy-aware manner.
- Significant benefit for people, businesses, agencies, government ...

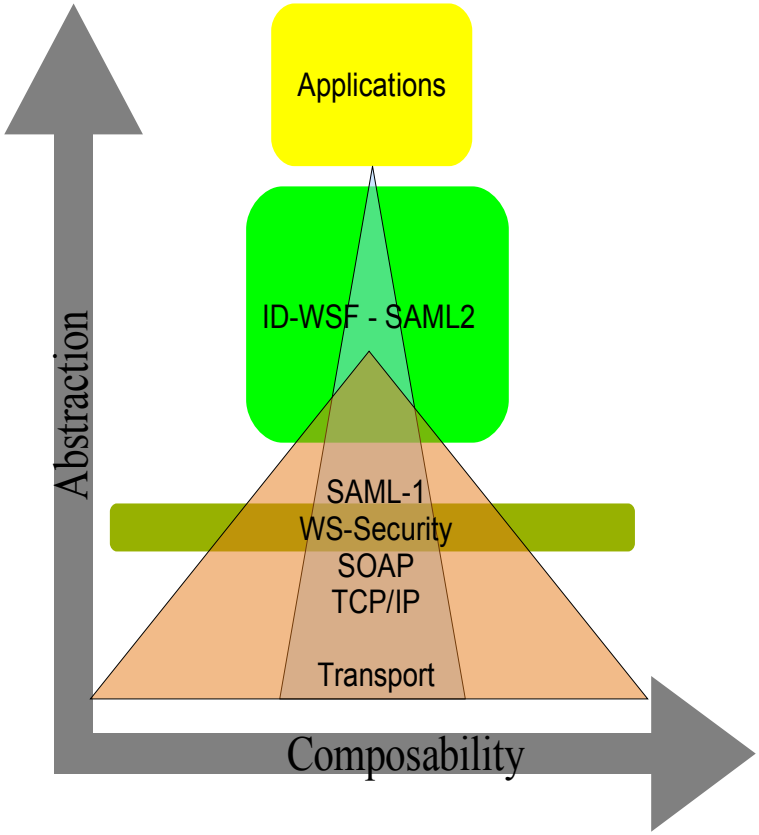
Country as a foundation

Netherlands as "typical" medium size country

- *16+ million inhabitants*
- 800K businesses (60% less than 10 employees)
- High level penetration of technology
  - Broadband ~50%
  - Mobile ~100%
- High fragmentation of government services
  - 480 municipalities
  - 12 provinces
  - 25 water authorities

Which standard for what

- **Global Connectivity**
  - Across repository, domain, ...
  - Seamless to User (complexity advert)
  - Want to be both consumer and provider
- **Increasing Demand for ID**
  - **Everyone wants your identity..but do you —the user—want it?**
  - **Need adequate privacy mechanisms before exposing it.**
- **Heterogeneous world**
  - Multi vendors, services providers and consumers are heterogeneous.
  - Multi-channel, cross devices, cross networks, ...
- **...**



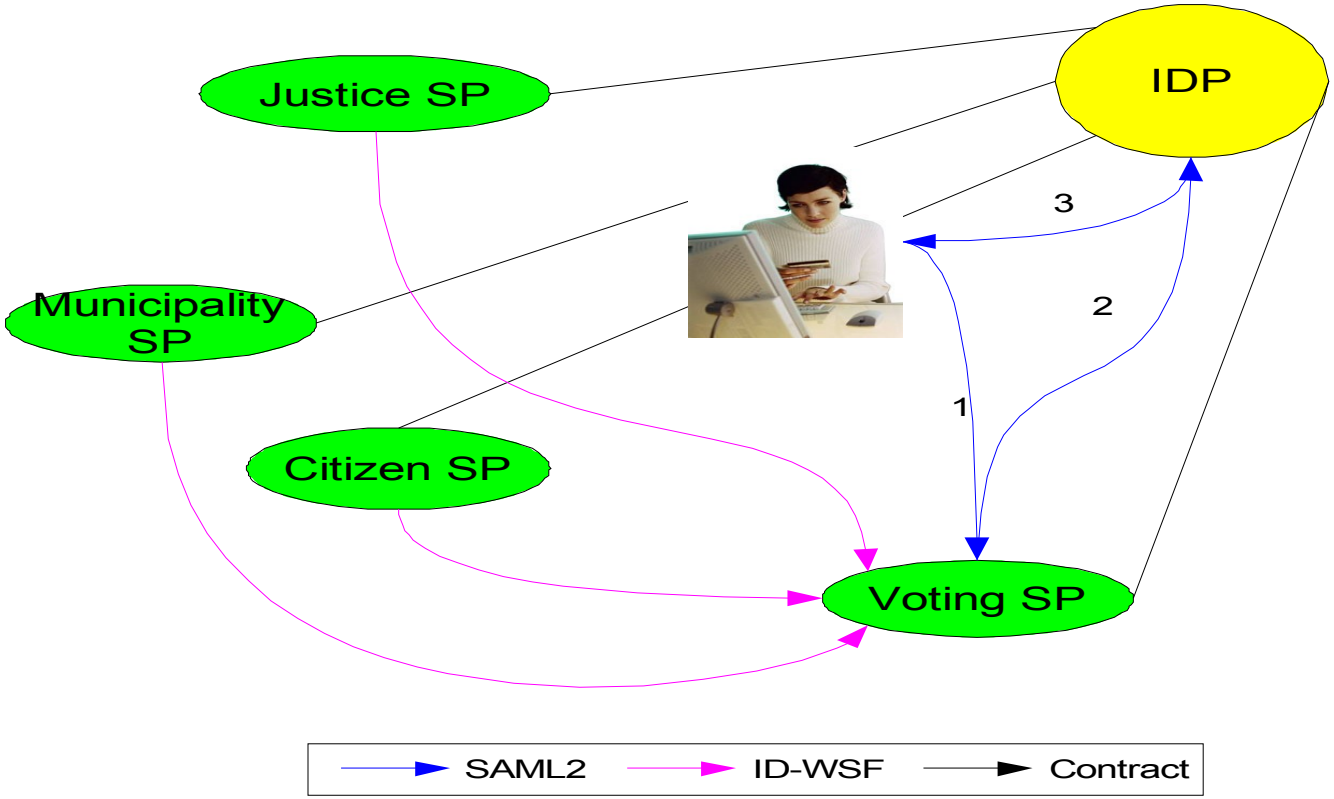
Waves of eGovt Applications

- Silo application
  - *anonymous services (document download, ...)*
  - *one identity, one application (ex: income tax, ...)*
  - *one time token (invoice, payment, ...)*
- Federated Single Sign On/Out
  - *Citizen portal (France, Norway, Austria, ...)*
- Attributes exchange / Proxy authentication
  - *Italy (drivers license)*
  - *Spain (e-prescription)*

Anonymous Vote Scenario

- **Government Constraints**
  - Must be 18+
  - Must not have any criminal record
  - Must be a citizen of “Lichtenstein”
  - Must only vote once
  - ...
- **Citizen Constraints**
  - Government should not know what you vote for
  - Voting SP should not know who you are

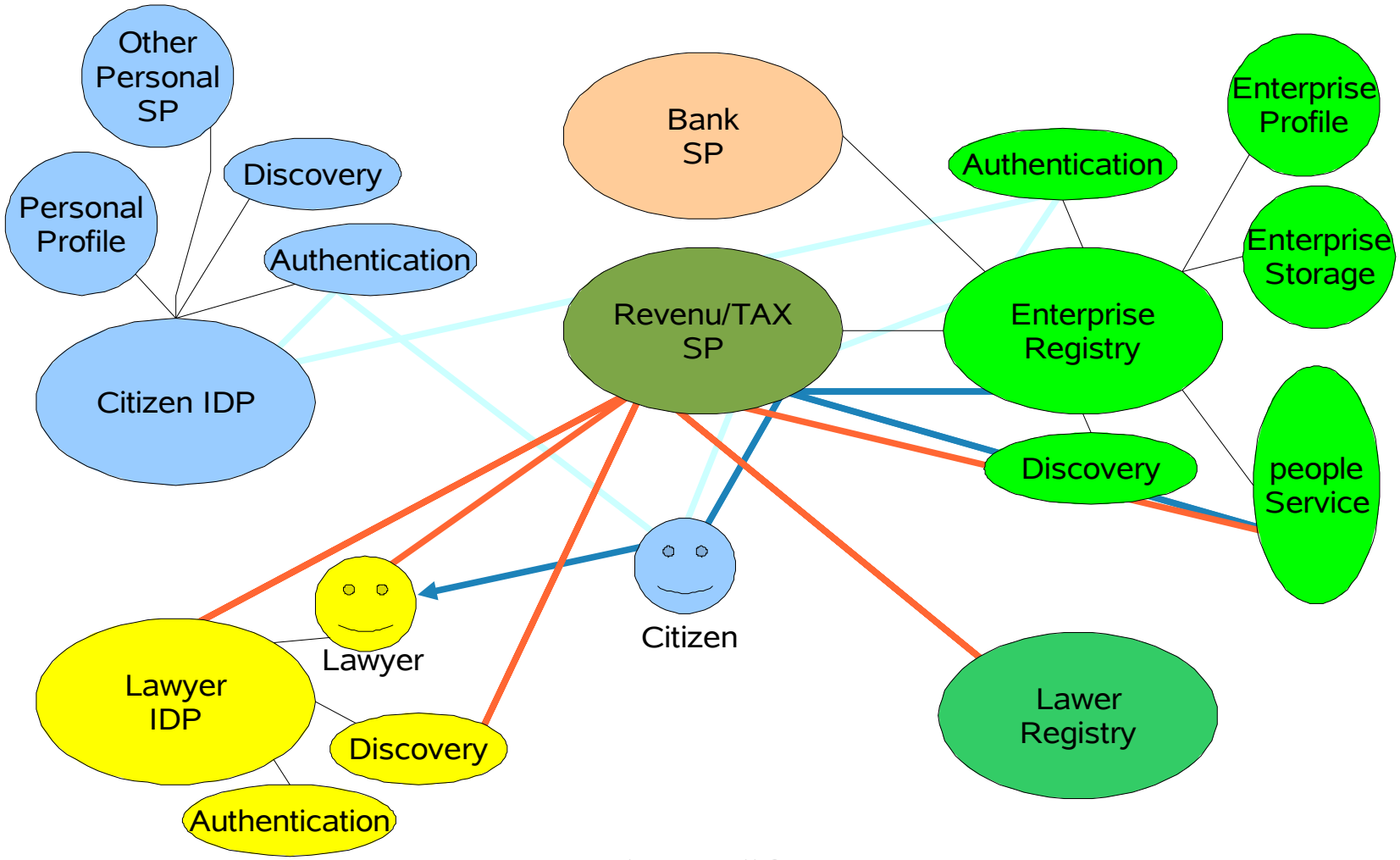
Anonymous Vote Flow



Delegation Scenario

- **You create a company (QuickMoney)**
  - Govt gives you a QuickMoney-ID
  - As citizen & owner, you act on behalf of QuickMoney
  - QuickMoney-ID is federateable (ex: with MyBank)
- **You sign a contract with a MyLawyer SP**
  - You allow MyLawyer to act on behalf of QuickMoney
  - You can control who can act on QuickMoney's behalf
  - eGovt service asserts MyLawyer as "authorized lawyer"
- **You sell QuickMoney to BigComp**
  - BigComp can now act on behalf of QuickMoney
  - BigComp can establish new delegations

People Service Delegation Flow



Architecture Requirements

- **Internet-Centric**
  - Cheap, fast moving (no special network, like it or trash it, ...)
  - Based on current Internet “day to day” user experience
  - No difference between citizens, employees, companies
  - Peer-to-Peer (scalable, efficient, data directly from source, ...)
  - Distributed (multiple authority, discovery, flexible, ...)
  - No central system, no “Big Brother”
- **User-Centric**
  - User in control of his global identity
  - Multiple personalities
  - Consent aware (nothing without my consent)
  - Strong privacy & security
  - Simple & intuitive

Why not a Unique Authority
(The Holy Grail !!!)

- **Super everything**, high level of complexity in one place tends to create super project & super failure.
- **Significant negative privacy issues**, bringing together attributes in one place goes against best practice and ignores lessons learned from the past.
- **Poor data quality**, central system requires complex synchronization from authoritative sources that best case are expensive and worse case present obsolete data as valid.
- **Never unique**, like mushrooms, independent of the amount of time/money spent, smaller authority/repositories will pop up.

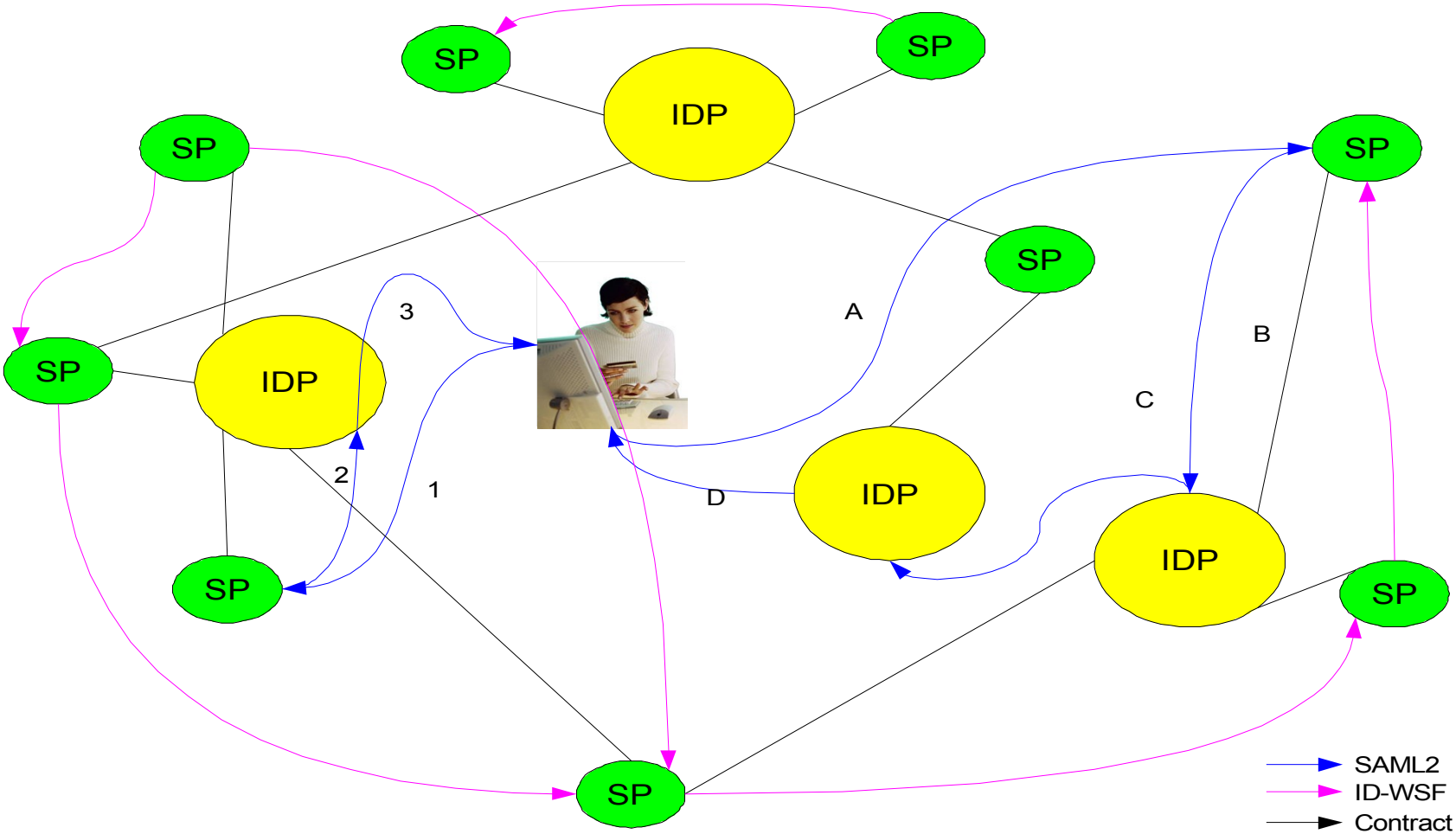
Federated Citizen Authority

- **Should be:**
  - a shield to allow citizen to interact with “untrusted” parties.
  - a trusted intermediary to find and exchange attributes in a peer to peer mode with a high level of confidence.
  - a friend that diminishes government process complexity.
  - a referent that guarantees user to keep control of its own identity.
- **Should not be**: a governmental version of “Google Yahoo”, a Big Brother, a new problem for citizen, something expensive, ...

Which Authority's Components

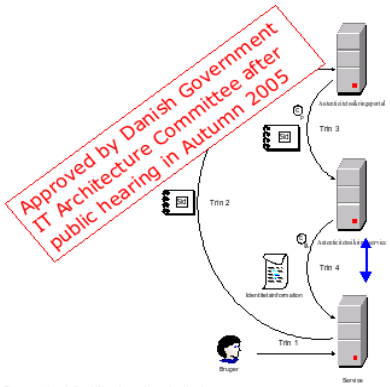
- Basic Authority Services
  - **Authentication Framework**
    - Common definition of risk
    - Common authentication confidence for a given risk
  - **Federation framework**
    - Multi-authority (proxy IDP model)
    - Multi-personality
  - **Discovery Mechanism**
    - Where to find services (in a user contextual mode)
    - Security Mechanism (Attributes shared 1st policy decision point)
    - Identity mapping (peer to peer in privacy aware mode)
  - **Social networking**
    - Should support delegation
    - Capability to create informal group of people
  - **Interaction Service**
    - Should allow user to be in control at any time
- Advanced Services: Personal Profile, Document Exchange, ...

General Federated Architecture



Mature and Evolving

Reference Architecture for Cross-organizational Single Sign On



"Portal"

Identity Provider (IdP)

Includes recommendations about
- Levels of Authentication
- Core user identity attributes
- Unique key to link user accounts

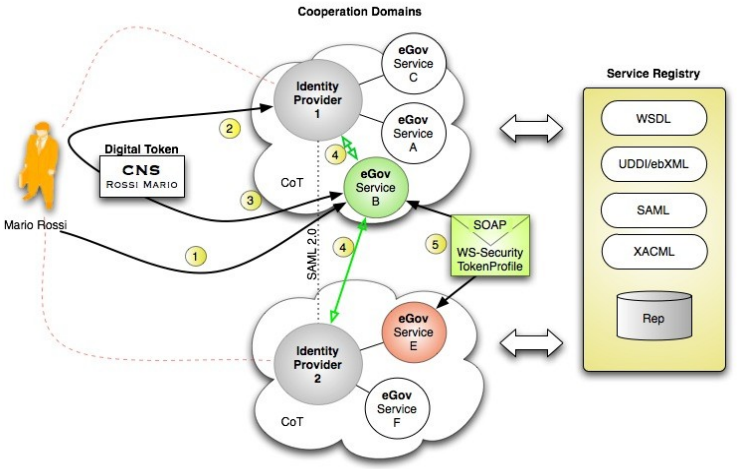
Service Provider (SP)

Conceptual Architecture is adopted from US Federal e-Authentication initiative

SAML 2.0 is the recommended federation standard

mon.Service-Public.fr

Le projet de portail Mon.Service-Public.fr doit permettre à l'usager - personne physique ou morale - l'accès à une gamme cohérente et étendue de services dans un environnement personnalisé, et ce dans des conditions permettant de créer la confiance.
Une version pilote a été développée et testée par 500 usagers mi 2006. Après des conclusions plutôt positives sur cette expérimentation et l'intérêt du service, la phase de réalisation du système "grand public" a été lancée.



Pa zo Echu, Echu eo(1) !

Disclaimer: I won't claim the ideas presented in this presentation to be exclusively personal or even original. Here are a few names of people I somehow trust(2) and from whom I stole one or more ideas that appear directly or indirectly in this presentation:

Andreas.Hamnes(Norway) Britta.Glade(USA) Colin.Wallis(New-Zealand) Conor.P.Cahil(USA) Efjestad.Dag(Norway) Eve.L.Maler(USA) George.Fletcher(USA) Hubert.Le-Van-Gong(France) Ignacio Alamillo(Spain) Ingrid.Melve(Norway) Jean-Severin.Lair(France) Lasse.Andresen(Norway) Lauren.Wood(Canada) Louise.Thiboutot (Canada) Mira.Nivala(Finland) Myriam.Cyr(Canada) Orhan.Alkan(Turquie) Ovidiu.Constantin(Italy) Paul.Madsen(Canada) Paul.Zeef(Netherland) Sampo.Kellomaki(Portugal) Søren.Peter-Nielsen(Danemark)Tanguy.Mercier(France) Tisserant.Alexandre(France) Victor.Ake(Finland)

Fulup@sun.com

(1) "When it is finish, Finish it is" in Breton Language
(2) Which does not mean they would agree with me