Virtual identity, our destiny

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Identity 1

Identity is an umbrella term used throughout the social sciences for an individual's comprehension of him or herself as a discrete, separate entity.

Identity 2

In psychology, a psychological identity relates to self-image, self-esteem and individuation.
An important part of identity in psychology is how a person views him- or herself as a person in relation to other people.
For example:
- gender identity
- cultural identity
- professional (social class identity)
- etc.

Identity 3

Identity of another party is how a community percept the party.

Identity in the past

- Years ago people communicated directly.

- They could speak each other standing face to face.

- They were not mobile, so everybody knew everybody's: parrents, grandfathers, profession, family, history,…

- Even written correspondence was also personalized since the handwriting was easy to identify and the writing style and some specific marks in letters (almost) uniquely characterized communicating parties.

- Also telephony was very personalized, what need not be explained.

- Authorities wanting present their will were to use tools that were inaccessible for common people and easy to control (temples, monumental state houses, steles with written rights, etc.).

Citiziens and authorities

Personal identity and cultural identity

In the past: knowing a man, one could easily assign him/her to:

- Certain cultural area

- Social class

- Concrete region

- Etc.

At present:

There is some correlation (in reality)

or

it is completely random (in the Internet)

Identity in the Internet age

We deal with the information processes:

- Storing

- Transforming

- Transmitting

When we look at subjects of, e.g., conferences in information processing,

we can observe the words:

- Parallel

- Distributed

- Ubiquitous

Virtual identity

Creating virtual identity

- Personal WWW pages

- E-mails

- Chats

- Blogs

- ….

One can present himself however he wants: …

Creating virtual reality

- Honey-pots

- Honey-nets

- Pharming

- …

Technological solutions for virtual identity

- Certificates

- Trust and reputation systems

- Biometrics

- Processor cards (Smartcards)

- RFID

- Identity management systems

Certificates

A certificate is an official document affirming some fact.

Due to the low cost of production as compared to other awards like trophies or plaques, certificates are used to recognize most any minor achievement throughout many levels of society.

Certificates are often used as an inexpensive positive reinforcement to encourage desired behaviours in many contexts.

In computing and especially computer security and cryptography, the word certificate generally refers to a digital identity certificate, also known as a public key certificate.

Personal Identity Card

Structure (hierarchy) of certification authorities
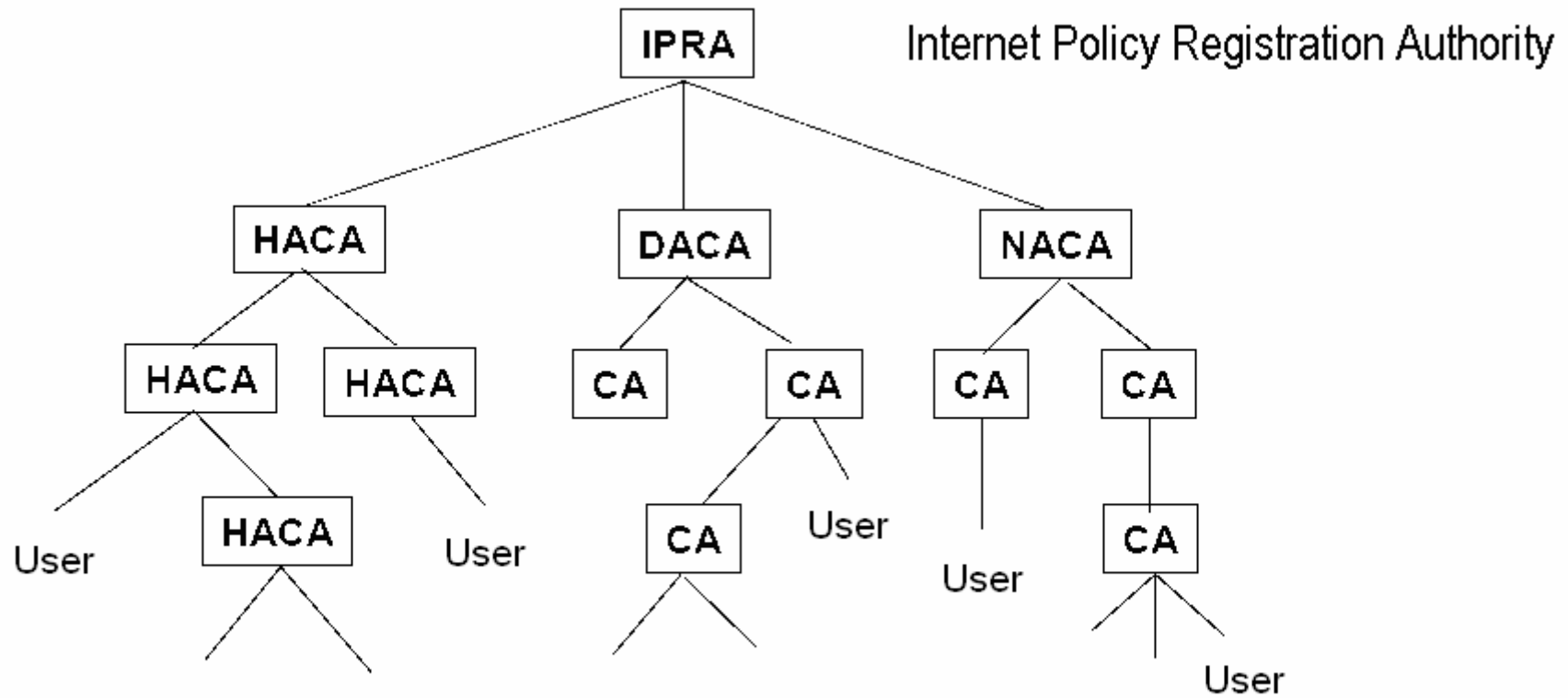
HA : High Assurance, DA:Discretionary Assurance, NA:No Assurance
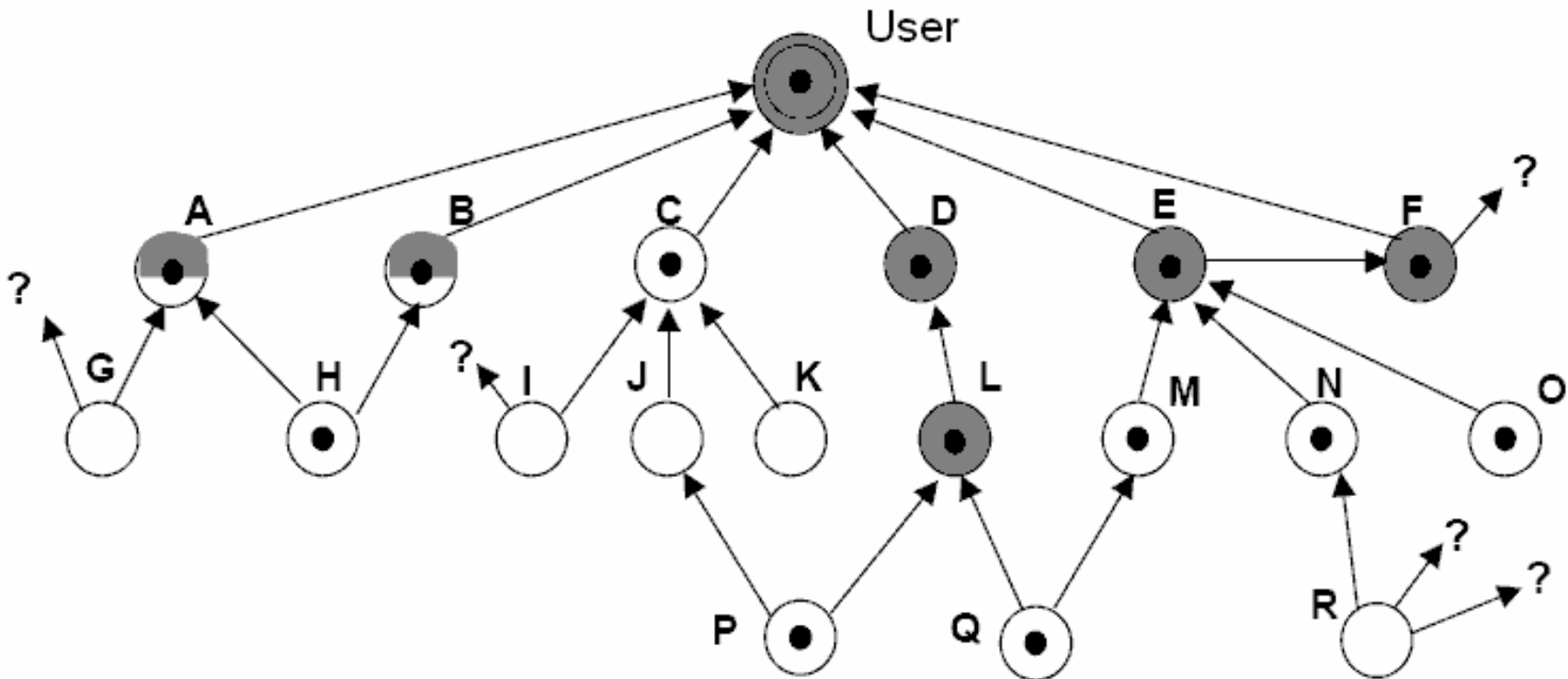
Trust and Reputation systems

Trust is a subjective probability by which a person expects another person to behave fairly.

Here, **fairly** means according to some pre-defined rules.

Reputation is some global opinion about a person.

Structure (mesh) of reputation relations

Biometrics

Biometrics (ancient Greek: bios ="life", metron ="measure") is the study of methods for uniquely recognizing humans based upon one or more intrinsic physical or behavioural traits.

Some researchers have coined the term behaviometrics for behavioral biometrics such as typing rhythm or mouse gestures where the analysis can be done continuously without interrupting or interfering with user activities.
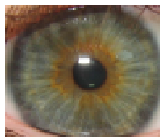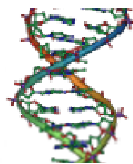
Biometrics

Physiological
- **face**
- **fingerprint**
- **hand**
- **iris**
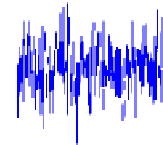- **DNA**

Behavioral
- **keystroke**
- **signature**
- **voice**

Processor cards (Smartcards)

A smart card, chip card, or integrated circuit card (ICC), is defined as any pocket-sized card with embedded integrated circuits which can process information. This implies that it can receive input which is processed - by way of the ICC applications - and delivered as an output.
There are two broad categories of ICCs.
- Memory cards contain only non-volatile memory storage components, and perhaps some specific security logic.
- Microprocessor cards contain volatile memory and microprocessor components.

RFID

Radio-frequency identification (RFID) is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders.

An RFID tag is an object that can be attached to or incorporated into a product, animal, or person for the purpose of identification using radio waves.

Most RFID tags contain at least two parts. One is an integrated circuit for storing and processing information, modulating and demodulating a radio frequency (RF) signal and perhaps other specialized functions. The second is an antenna for receiving and transmitting the signal.

An emerging technology called chipless RFID allows for discrete identification of tags without an integrated circuit, thereby allowing tags to be printed directly onto assets at lower cost than traditional tags.

The RFID tag can automatically be read from several meters away and does not have to be in the line of sight of the reader.

Thus, RFID could be a real menace to peoples' privacy.

RFID

Identity IV

In philosophy, the issue of personal identity concerns a number of loosely related issues, in particular **persistence**, **change**, **time**, and **sameness**.

Personal identity is the distinct personality of an individual and is concerned the persisting entity particular to a given individual.

The personal identity structure appears to preserve itself from the previous version in time when it is modified.

It is the individual characteristics arising from personality by which a person is recognized or known.

Identity management and self-management

We need a solution (*Identity Management System*), which could present **exactly as much reliable information** about a person, as is required for his/her specific activity.

Besides, the system should:

- Prevent any falsifications of identity;
- Verify parties, which ask for the identity information;
- Control, why a party wants to obtain the identification information;
- Inform the identity owner about the information delivered to an asking party;
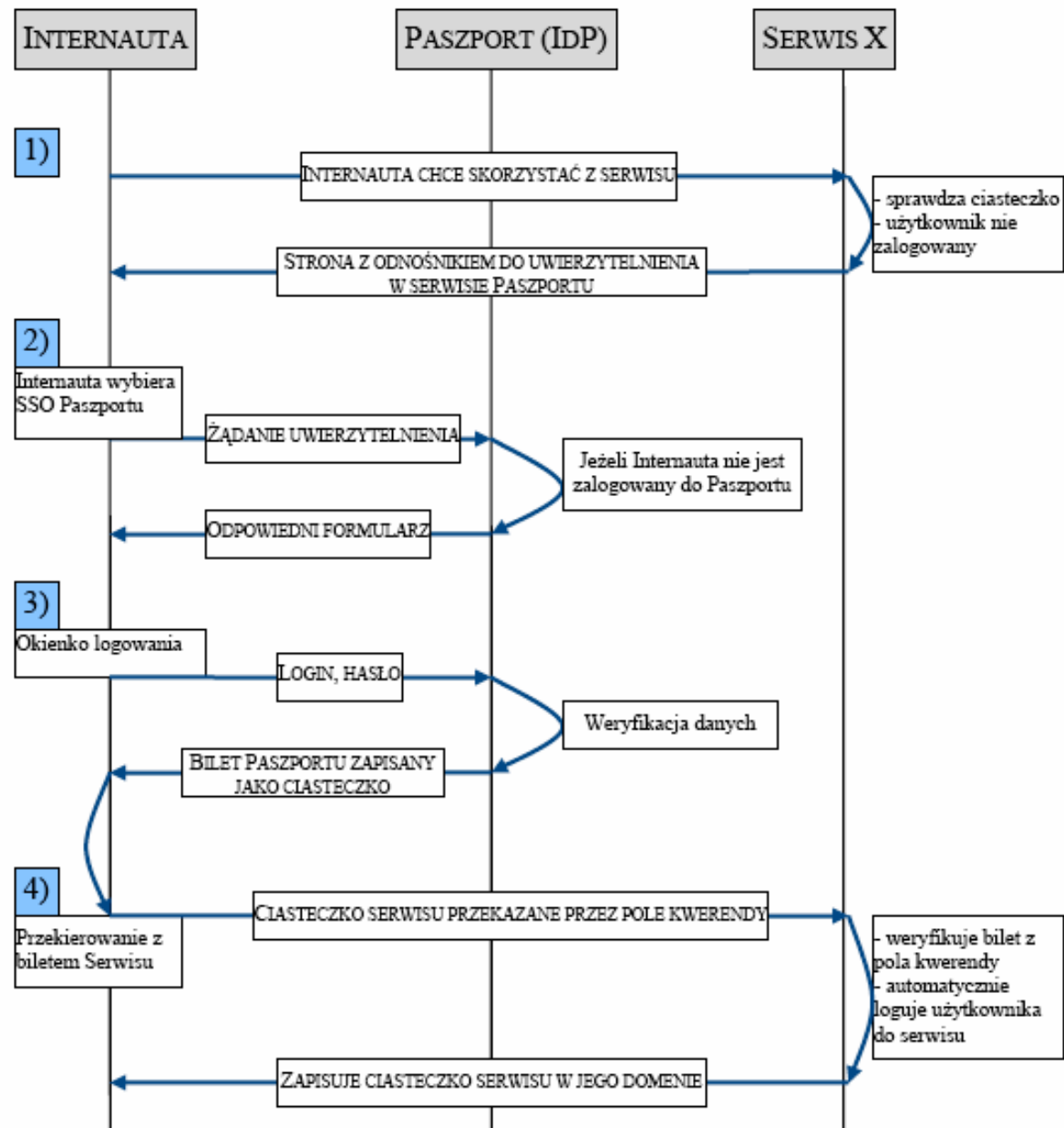- Provide revocable anonymity solutions for the identity information.

There exist such professional solutions (e.g. prepared according to *Liberty Alliance* standard), using a *Trusted Third Party* (*Identity Provider*).

An Example

Identity with revicable anonymity

A passanger buying a bus ticket

- Standard case

- Injury accident

- (Almost) Fatal accident

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