

WHY DOES CLOUD COMPUTING SUPPORT E-HEALTH?

Mario Po'

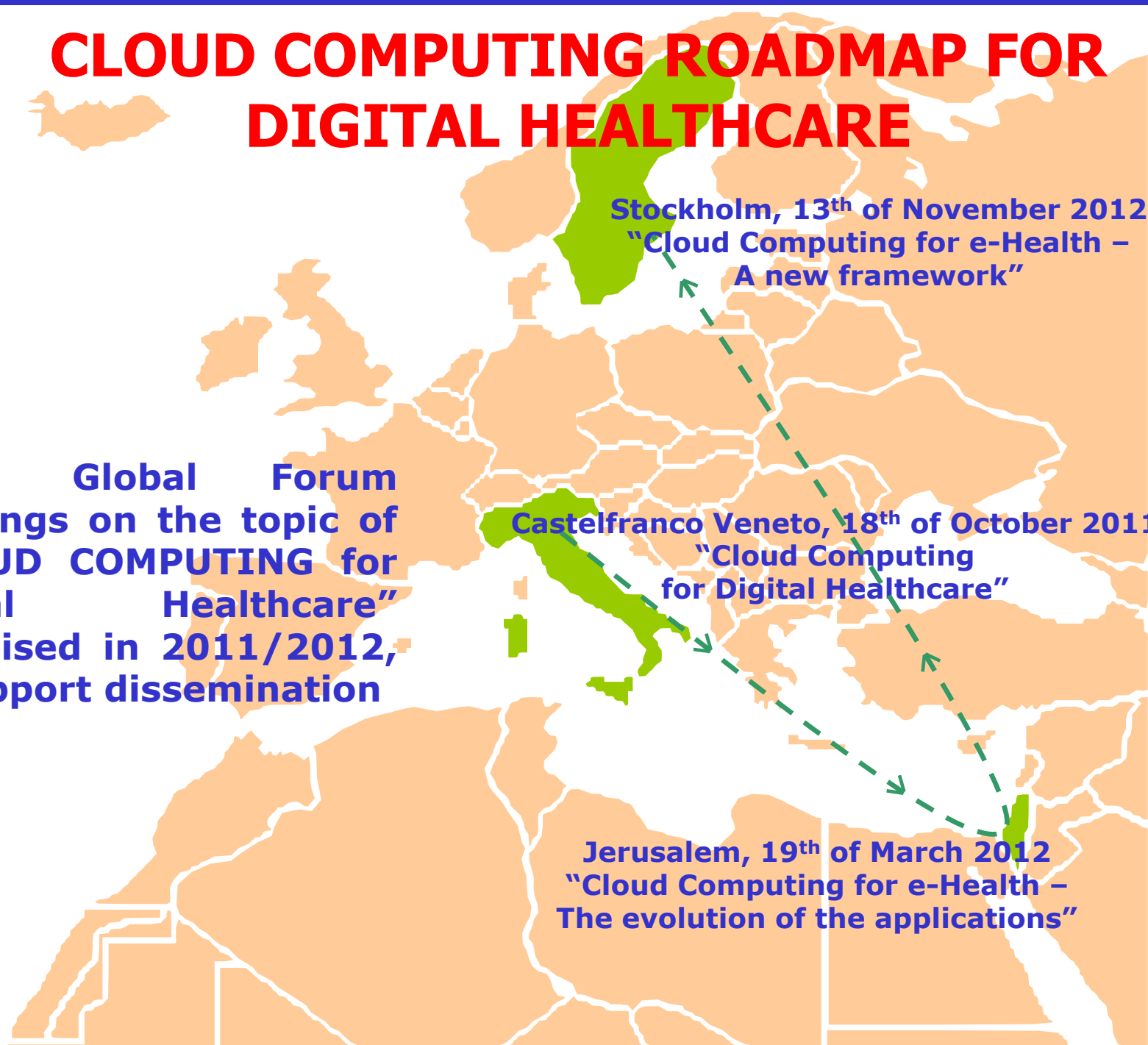
CLOUD COMPUTING ROADMAP FOR DIGITAL HEALTHCARE

Stockholm, 13th of November 2012
"Cloud Computing for e-Health –
A new framework"

Castelfranco Veneto, 18th of October 2011
"Cloud Computing
for Digital Healthcare"

Jerusalem, 19th of March 2012
"Cloud Computing for e-Health –
The evolution of the applications"

Three Global Forum
meetings on the topic of
"CLOUD COMPUTING for
Digital Healthcare"
organised in 2011/2012,
to support dissemination





The conclusions of the Castelfranco Veneto Conference were summarised in the Castelfranco Charter as recommendations for cloud end-users.

The Castelfranco Charter was validated by UNESCO in the 2012 Seminar in Paris.



THE CASTELFRANCO CHARTER.1

The twelve points of the Castelfranco Charter are grouped into five areas

Recommendations on preliminary conditions and activities:

- 1.** Operate on a redundant **broadband network**, for the connection between hospitals, physicians, patients and service providers.
- 2.** Ensure **“private cloud”** usability as a preliminary step before agreeing to switch to a **“public cloud”**.
- 3.** Establish a **roadmap** to move hospital systems into cloud computing under sustainable economic, management and security conditions.



THE CASTELFRANCO CHARTER.2

Recommendations on vendors' guarantees:

1. Ensure storage of clinical data in **data centers** located in a EU country guaranteeing compliance with Italian/European laws and regulations.
2. Request providers to guarantee:
 - **interoperability** between intra-cloud, inter-cloud, and cloud systems with non-cloud systems.
 - **data portability** in the event of transfer to another provider.
3. Request providers to guarantee permanent operative **continuity** of the systems in cloud.



THE CASTELFRANCO CHARTER.3

Recommendations on monitoring activities:

1. Specify the vendor's management policy for clinical data **storage/backup activities** in cloud.
2. Closely monitor sessions to exclude any **external tampering** with the clinical data in cloud, always allowing access to the systems by the responsible authorities.



THE CASTELFRANCO CHARTER.4

Recommendations on providers' profile:

1. Formalize the service providers' liability for clinical **data misplacement**, loss and/or theft, outages, downtime, and interoperability failures.
2. Verify **providers' confidence** regarding clinical processes and hospital organization.



THE CASTELFRANCO CHARTER.5

Recommendations for the healthcare authority organization:

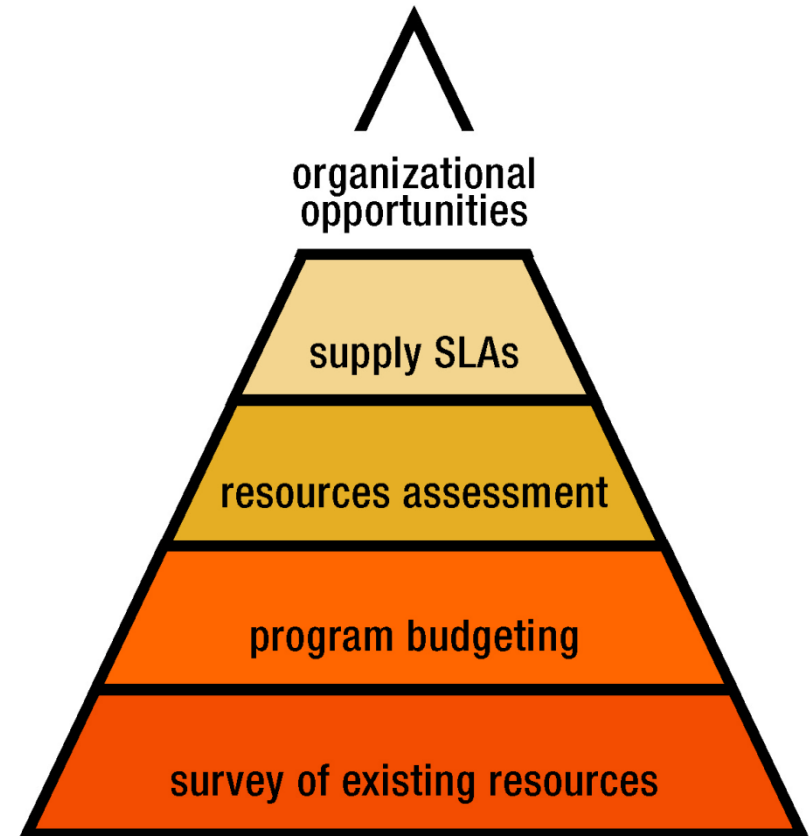
- 1. Modify the hospital ICT infrastructure towards service management skills.**
- 2. A “Hospital Privacy and Risk Manager” to supervise clinical data management, protection and security.**



THE CASTELFRANCO CHARTER

A roadmap to decide The third recommendation

The roadmap moves hospital systems into cloud computing under sustainable economic, management and security conditions. The roadmap can be seen as having a **pyramidal architecture**, in the sense that a subsequent can be performed the previous one has proven or satisfactory or complete, according to a **logical sequence** in which process economy governs the various stages:





The conclusions of the **Jerusalem**

Conference in turn
led to two major
results in terms of
applications: one
general and one
more specific.

Conference Cloud Computing for e-Health

The evolution of the applications



Temple of Jerusalem (picture from a Passover haggadah of Pesach, XVII century)

Jerusalem

The David Citadel Hotel

March 19, 2012 9.00am/4.00pm

RESULT N° 1: SAFETY

Safety and technology requirements strongly encourage the use of cloud to manage the conservation of data, documents, clinical images (as testified last year by natural events such as the earthquake in Emilia or the floods in Liguria).



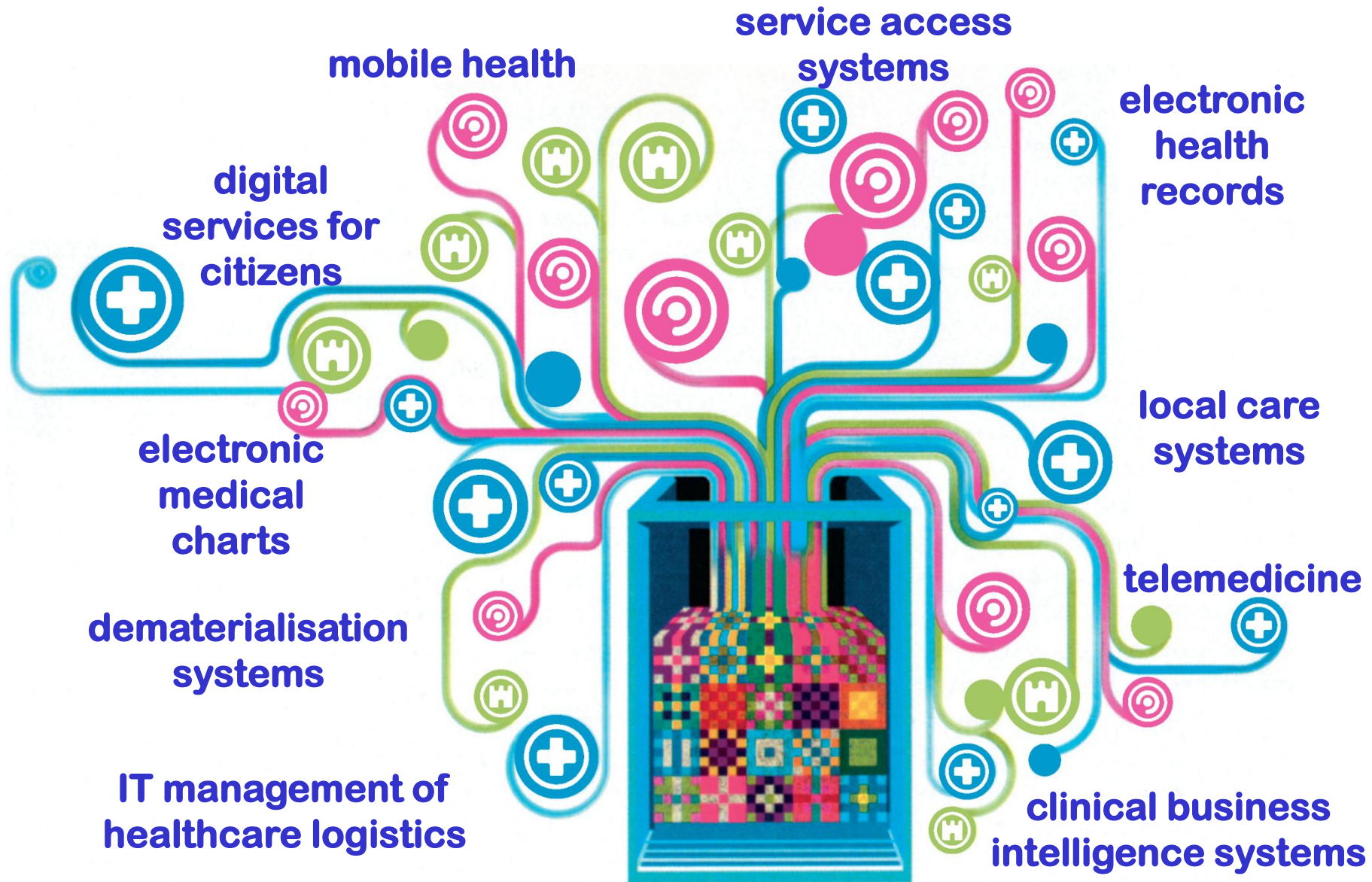


RESULT N° 2: ELECTRONIC HEALTH RECORD

The cloud-based Electronic Health Record solution implemented by the Hospital of Castelfranco Veneto facilitates the possible introduction of the Regional Health Records based in cloud computing in all the 59 hospitals in the Veneto region.



THE VIRTUAL HEALTHCARE SYSTEMS. THE SOLUTIONS PROVIDED BY CLOUD



IMPLEMENTATION CRITERIA

The development of a sound healthcare system in cloud is reliant on three main criteria:

- 1.** the combination of cloud and non-cloud based clinical activities should not exceed a 60/40 ratio to the benefit of cloud computing;
- 2.** the definition and monitoring of safety standards, guaranteed operating standards, technology update at a level exceeding conventional levels of service;
- 3.** as a percentage, the breakdown of PAAS, SAAS and IAAS investments should be 60, 30 and 10 percent respectively.



STEPS OF THE MIGRATION INTO CLOUD

These criteria can reliably lead to migration into cloud in two simple steps:

first step

dematerialisation systems
systems to ensure access to
services
health logistics

second step

electronic health record
mobile health
telemedicine



RESTRICTIONS DICTATED BY CLOUD

There are important examples of best practices in Europe and North America of cloud computing applied to the management of healthcare records, data, clinical activities and diagnostics.

We can do more and faster.

Issues have been raised on how to steer and limit cloud computing in the following areas:

- secure management;
- national/European geo-referenced data;
- protection of confidential personal information;
- integration between cloud and non-cloud systems and reversibility.



RESTRICTIONS OR GUIDELINES?

How can we manage these problems?

Is it useful to set restrictive national and European laws on the development of cloud to solve the problems that will inevitably arise in the new scenario?

For example, in Italy alone, the cloud market invoices some 400 million Euros yearly.

Setting rigid rules means hindering cloud applications that can ensure the dissemination of e-health.

So, my question is: restrictive rules or dissemination of applications?





Thank You

Grazie

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