

Streamlining the Global Village Grid Services

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Abstract: Using the SOA would be as an economic dynamo to transform the legacy business processes to the matured and unbundled E-Services. While there are some differences in between the definitions of E-things in Developing Countries and Developed Countries, the concept of SOA is inferred as the same. The SOA is being used in the E-Governments, E-Governances, E-Commerce and E-Businesses projects and plans as an architectural style. In this context, no governments could be achieved to the goals of the SOA. We believe in that, in the Global Village Governance, the SOA is more than an instance of the architectures and the architectural styles. SOA is a strategy, in spite of the fact that it is not adopted with the term "Service Oriented Architecture". In addition to, this paper discusses that Global Village Governance could be realized through the Unifying E-Services over a Grid as the future technology to have a tightly coupled network to support the globalization E-Services.

Key words: SOA . Unifying E-Services . X2Y . E-Services . global village governance

INTRODUCTION

Hayward predicts in Gartner that by 2008, "SOA will provide the basis for 80 percent of new development projects" [1].

Using the SOA would be as an economic dynamo to transform the legacy business processes to the matured and unbundled Services.

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We believe in that, in the Global Village Governance, the SOA is more than an instance of the architectures and the architectural styles.

SOA is a strategy, in spite of the fact that it is not adopted with the term "Service Oriented Architecture".

Besides, the SOA is being matured as a strategy to represent the functionalities by way of realizing and adopting the future and new changing requirements in the format of added-value E-Services. The Global Village Governance could be realized through the Unifying E-Services over a Grid as the future technology to have a tightly coupled network to support

the globalization E-Services. In addition to, the Unifying E-Services could be realized as a radical activity to streamline the Global Village Governance by way of Unifying E-Governments, E-Businesses and E-Commerce services.

E-GOVERNMENT AND E-GOVERNANCE

E-Government or E-Governance is defined in too many researches. Each research emphasizes to its corresponding theme. The most important definitions and explanations pertaining to the E-Government or E-Governance are detailed as the following; The term E-Government was introduced by a joint report of the National Performance Review and the Government Information Technology Services Board in 1997 according to "Access America: Reengineering Through Information Technology" [2, 3]. Strejcek and Stratford specified E-Government as a new on the European agenda [4, 5]. Also Frey and Holden directed E-Government as a relatively new trend [6, 7] and it threatens to shift existing public sector value chains. Also, The European Commission defines E-Government as "the use of ICT in public administrations combined with organizational change and new skills in order to improve public services and democratic processes and strengthen support to public policies"[8].

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Beynon reported the term E-Government generally refers to the use of ICT to change the structures and processes of government organizations [9]. Also, Beynon pointed many governments worldwide have invested heavily in this agenda but there is a lack of clear case material, which describes the potentialities and pitfalls experienced by organizations grappling with this change.

In an empirical survey, the United Nations (UN) and the American Society for Public Administration (ASPA) defined E-Government as utilizing the Internet and the World-Wide-Web for delivering government information and services to citizens. E-Government activities can be examined in terms of the interactions between sectors of government, business and citizens [10-12]. Also, Evans highlights the United States Government organizes the opportunity categories to serve its citizens in a Web-enabled manner into four groups as follows [13]; Government to citizen (G2C), Government to business (G2B), Government to government (G2G) and Intra-government internal efficiency and effectiveness (IEE). There are a lot of important instances from the definition of E-Government and E-Governance, E-Commerce and E-Services terms which are compiled and compared in [14].

E-GOVERNMENT PROJECTS

Since the late 1990s, governments have launched electronic government projects intend at providing electronic information and services to citizens and businesses. E-Government projects face multiple and complex challenges. Identifying and overcoming these challenges is not always easy as Gil-García said [15]. It takes several research disciplines to identify and understand these challenges [16]. In various parts of the world E-Government progress seems to slow down because of budget limitations [17]. In the United States in the 1990s, up to the Congress' decision to improve IT funding in 2000, many E-Government programs ran into great difficulties because they had little or no financial resources [18]. Some governments have found that to have a better government that is mandatory to rethink to their government's structures by way of Enterprise Architecture Frameworks and in general, Enterprise Information System Frameworks. Denmark, Korea and Germany are countries which emphasis on Enterprise Architecture (EA) in a straightforward way; Canada, UK and News Land have used EA through practical EA's viewpoints, for instance; interoperability and XML wise.

Additionally, There are enormously efforts such as; Wimmer model [19], MAIS framework [20], MOVE environment [21, 22] and FRESCO project [23] which have been done to specify more the role of E-Services in any kind of E-Governance projects. Project "G7+2 E-Government Services Reference Model" as the report "*Beyond E-Government, The word's most successful technology-enabled transformations*" [24], has focused on the G7 nations, plus Australia and Sweden, to look both within and beyond EU borders. This report presents in a condensed form the results of an eight-month study into the level of sophistication of E-Government across nine countries; Australia, Canada, France, Germany, Italy, Japan, Sweden, UK and USA. In this manner, "*UN Global E-Government Model*", focuses on "From E-Government to E-Inclusion", the blend of information technology with the need for good governance places E-Government at the center of the government's leadership role in promoting equitable human and social inclusion. In this context, the definition of E-Government needs to be enhanced from simply 'government-to-government networking' or 'use of ICTs by governments to provide information and services to citizens' to one which encompasses the role of the government to be equitable and socially inclusive. E-inclusion goes beyond E-Governance. It is defined as the use of modern information technologies to address the issues of access-divide and inclusion and promote opportunities for economic and social empowerment of the citizen in the globe as mentioned by UNPAN in 2005 [25].

THE GLOBAL E-GOVERNANCE AND E-COMMERCE THROUGH E-SERVICES

The Government Administrators focused in E-Government as an umbrella than E-Commerce, Although Turban taken into account the E-Government as an E-Commerce Model [26]. Salem said in the United State, there are some real projects of controversy of E-Commerce and E-Government, surrounding the PubSCIENCE initiative from the Department of Energy to outline the issues involved in defining the boundaries between E-Government and E-Commerce in such a way that cooperation is developed and competition is avoided [27].

Thus, the role of the Government to facilitate the commercial affairs is too important; as E-Government is introduced as the fifth issue of the E-Commerce strategies in UN report in 2002. Government can specify and authorize all of the internet stakeholders to approach E-Commerce strategies as soon as possible

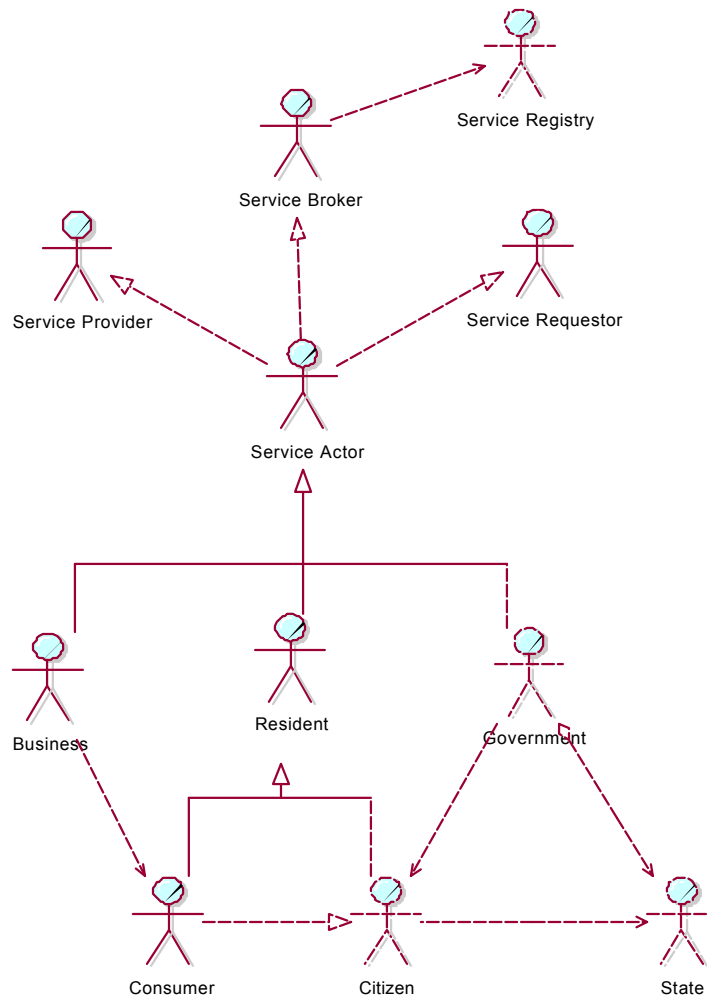


Fig. 1: Inheritance, association and dependency relationships that exist between service provider, service requestor and service actor

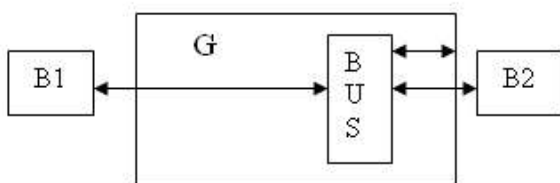


Fig. 2: Government as a direct supervisor on business transactions

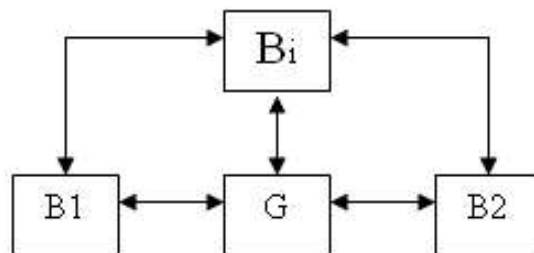


Fig. 3: Government as a big Business

[28]. The main goals of developing these strategies are; higher performance, Encouraging for better competition, Clearing for more foreign investment, Informing & training, omitting brokers even E-Broker.

The obvious point is that the government isn't a competitor for business centers and it only facilitates and leads businesses to a desired commercial situation. In a systematical view, the government commercial

subsystem is just as a coworker agent in a Multi Agent System to integrate information and services for businesses and residents. Any kind of agents or Actors could be related to the Global Village Governance are; Government, Business and Residents (Citizens plus Consumer) as depicted in Fig. 1. in addition to, Inheritance, Association and dependency relationships

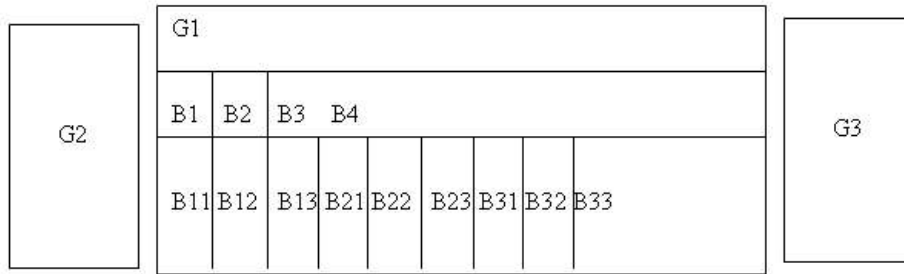


Fig. 4: Government as a virtual holding company

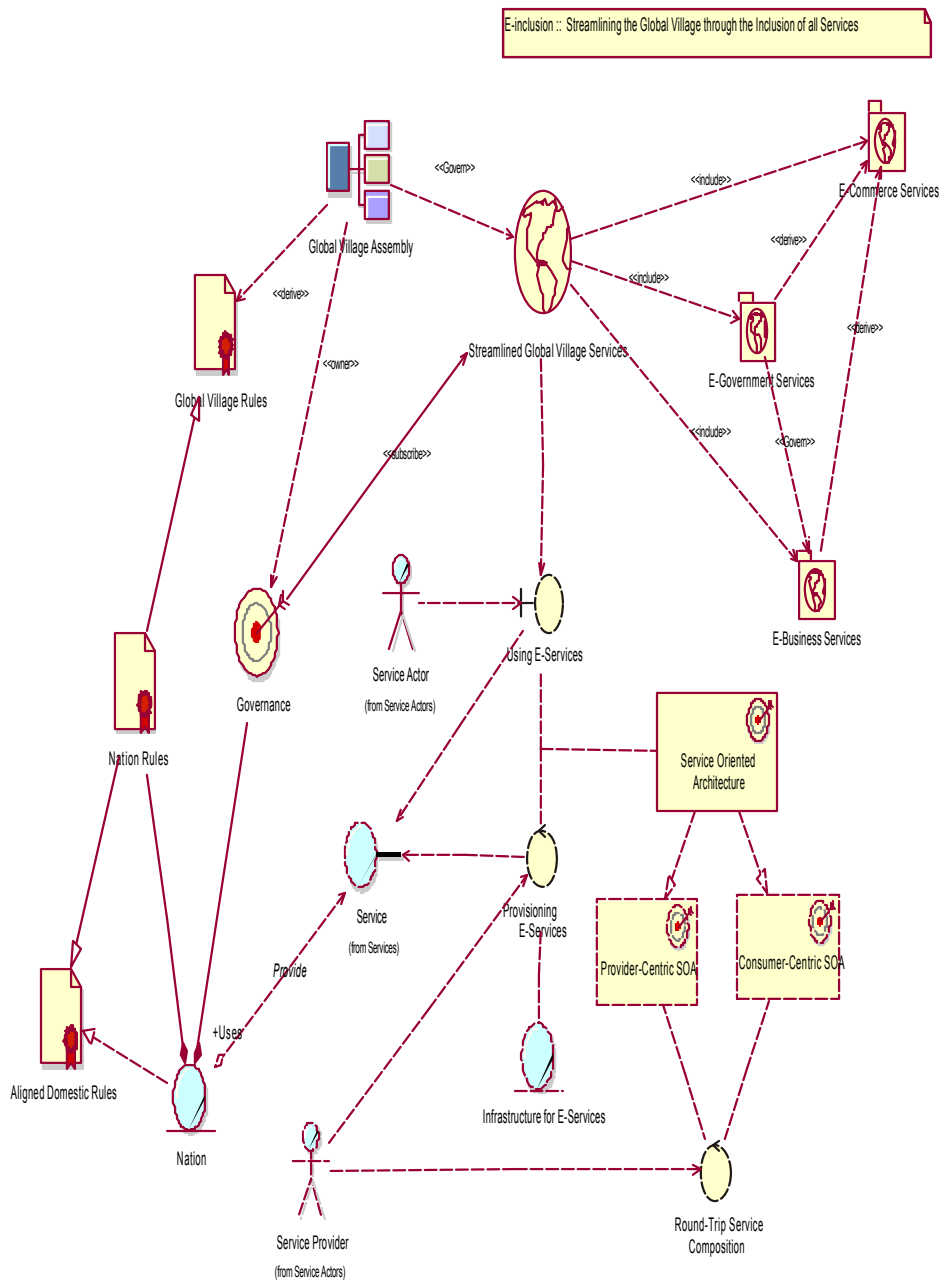


Fig. 5: E-Inclusion as the global E-Governance and E-Commerce model

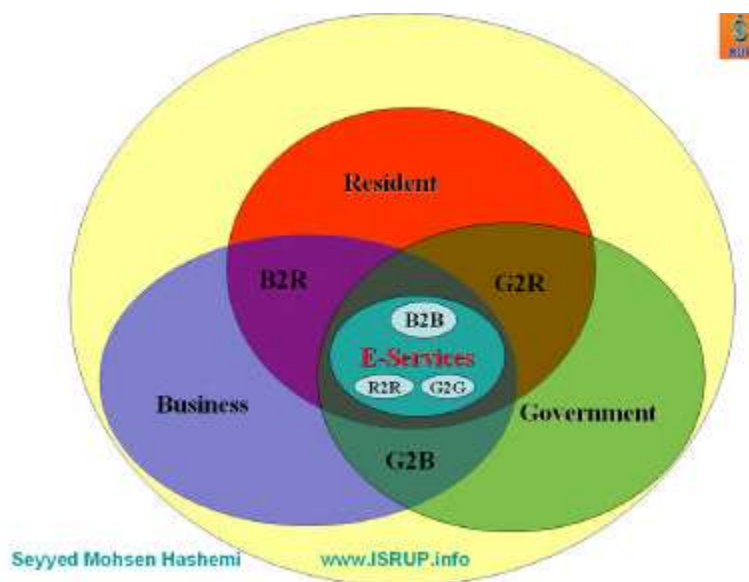


Fig. 6: Venn diagram; the next generation governance frameworks are E-Services centric

that exist between Service Provider, Service Requestor and Service Actor are illustrated in Fig. 1.

What are designed in the next generation E-Services Frameworks are the relationships that exist between a government and its businesses and the relationships that exist between businesses mutually (B2G2B) in a collaborative manner. All of the transaction and interactions between businesses (B2B) and others are passed through an interoperable space. In general, the existent transactions between a government and its businesses can be communicated in three kinds of models technical wise as one of them would be fit to coordinate the services in the Global Village Governance (Fig. 2-4).

However, the elaboration of the above models couldn't be here and it is out of the scope of this paper, albeit, in consideration of represented models, Government agent and Bi agents are subsidiaries of a virtual holding company. Additionally, proportion of E-Democracy in E-Business will specify the governance type of the E-Governments. However, in a universal model, E-Commerce discussed more in B2B models, but in analytical models, we also need consideration and measurement of democracy impress in models of other EGovernment models. In the best technical view, a Government is considered as one powerful Business with special and specific aims and business rules toward other businesses (G as a big B). In other words, a governance in behind of a government could be more collaborative if it would be as a virtual holding company [29-31]. The Global Village Governance must change its business and Governance rules to realize the third kind of E-Governances in the

glob [32]. Also, in this context, Varavithya pointed that "we need global rules to facilitate global trading and governing" [33].

According to the above mentioned convergences which exist between the Governance and Businesses, an E-Inclusion model involves E-Governments, E-Businesses and Ecommerce is proposed to realize the Global Village Governance over a Grid, as illustrated in Fig. 5 and 6.

As Fig. 7, a Service enclosed from a Service Goal, a Service Specification, a Service Resource Collaboration model and a Service Result. In addition to, a Service Uses four kind of Resources; Physical Resources, Financial Resources, Human Resources and in a general manner, Information Resources. The Service Result would be a kind of Service Resources as an outcome.

Additionally, in that UML class diagram, syntax and semantic of the relationships for Added-Value Services, Services, Service Resources and Service Collaboration are precisely modeled.

Moreover, the added-value Service as a repeatable task could be compiled the Simple or Composite and they could be compiled from the Public or Private Services. Furthermore, each Service has a Grid Node Identifier (Grid Node ID) to represent its association with the Grid nodes which elaborated in section 5.

Some researches adjust the focus of existing one point to access the E-Services [34-37], this point could be the Global Village Governance portal which serves any kind of provided and on demanded E-Services to any kind of the Services Actors.

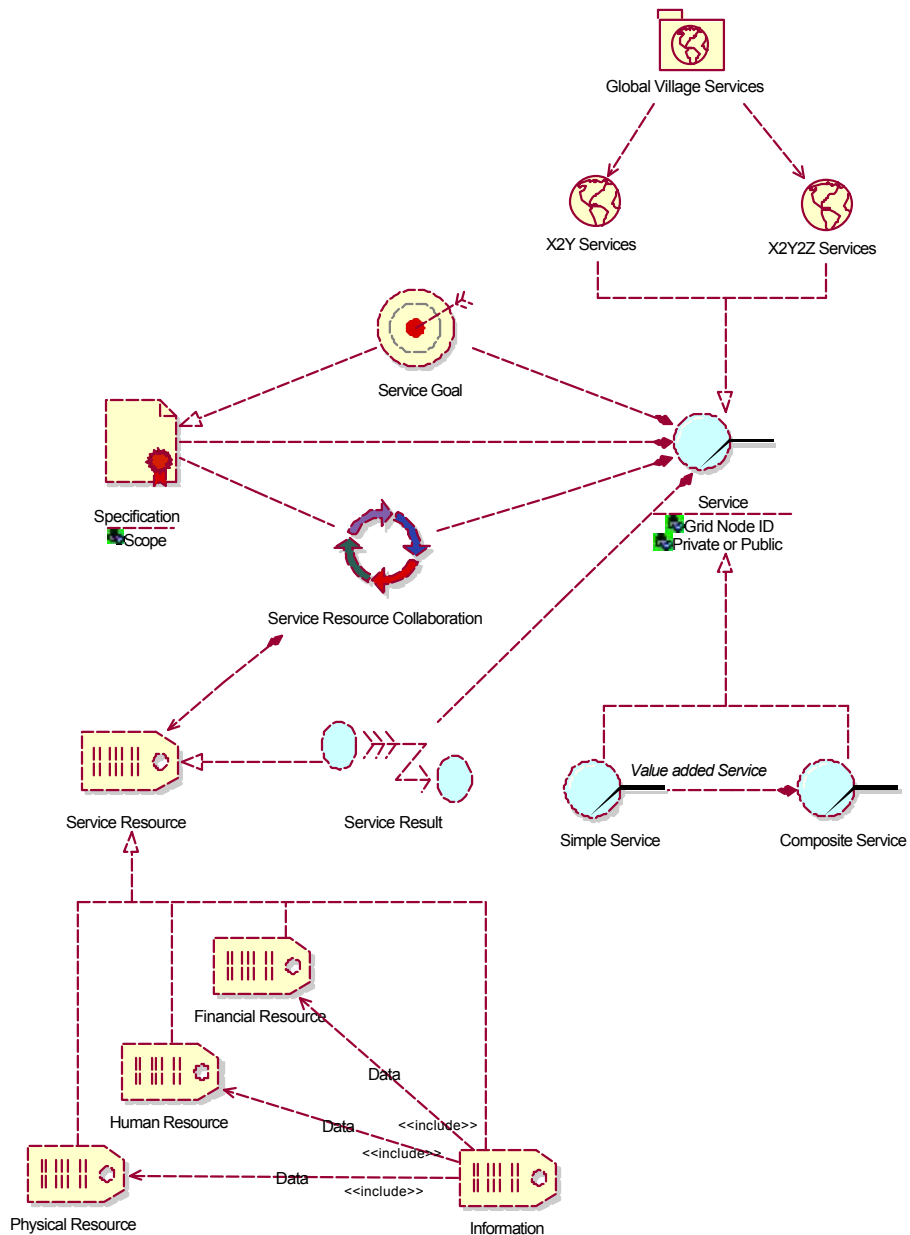


Fig. 7: UML class diagram: Syntax and semantic of the relationships for the added-value services

The structure of Service Actors, Services and Service Actions is specified in a UML Class diagram as Fig. 8. There are two Packages entitled as Service Actors and Services. A Service Actor is an instance of a Service Requestor, Service Broker and/or Service Provider as Fig. 1. Also, a Business, a Resident (Consumer or Citizen) and a Government part could be as instance of a Services Actors Class. The taxonomy and the structure of an EService are detailed in Fig. 6 and 7, consequently.

As Fig. 8, a Service Action in association of {a Service Actor, a Service} could be as an effector to

Service Registry ID, Service Grid Node ID and IsComposite attribute and could be triggered by Find(), Bind(), Publish(), Subscribe() and Notify() methods in the Global Village Governance.

THE GRID INFRASTRUCTURE FOR E-SERVICES

As the result of the Globus project [38], a grid is a collection of machines, sometimes referred to as nodes, resources, members, donors, clients, hosts, engines and many other such terms. They all contribute

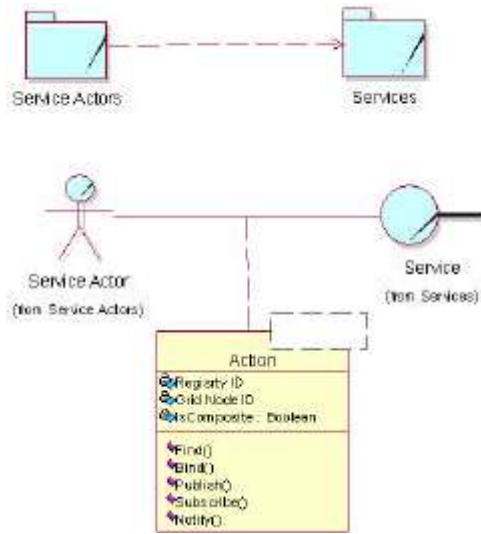


Fig. 8: UML Class diagram: the structure and Association of Service Actors, Services and Service Actions

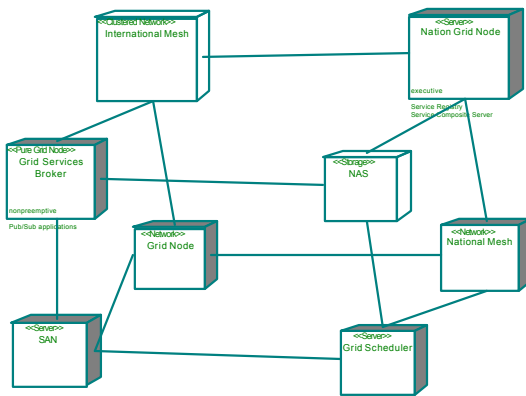


Fig. 9: UML deployment diagram: A part of the global village governance

any combination of resources to the grid as a whole. Some resources may be used by all users of the grid while others may have specific restrictions. Furthermore, there are more precise definitions pertaining to the term of the Grid in [40, 41].

Furthermore, Halchin pointed [39], the resources could be like electronic and computer networks, which are linked to other critical infrastructures such as our energy, financial and securities networks. Moreover, the Grid era needs an EGovernance model to realize the Global Village Governance pertaining to the globalization and we believe in that the SOA is being matured as a strategy to represent the functionalities by way of realizing and adopting the future and new changing requirements in the format of added-value E-Services as Fig. 7.

Table 1: Nine situation of each node of the global village governance

Service broker	Service requester	Service provider	Grid node
ISB	ISR	ISP	International
NSB	NSR	NSP	National
SSB	SSR	SSP	State

The future technology to have a tightly coupled network to support the globalization is the Grid. In a simple manner, a grid as the infrastructure for E-Services, has involved some independent network-node in a mesh structure, as the Fig. 9. Figure 9 shows a part of the Global Village Governance in a UML Deployment Diagram. The geographical situation of a grid node can be International, National or State. In addition to, each node of the Global Village Governance could be as a service provider, service requester or service broker or a combination of them as Table 1 [14, 29].

CONCLUSION

The Globalization would be realized in technical wise in three concepts; Virtual Infrastructure, Virtual Resources and Virtual Services or E-Services. The Global Village Governance as the Next Generation Government Framework addresses a full range of enterprise patterns based on E-Services which include the development of comprehensive strategies to integrate internet based solutions, E-Business, E-Commerce and E-Government disciplines, E-Services technologies and methodologies into the software sensitive organizations. In addition to, the Global Village Governance would be focused to facilitate the working of Service Requesters, Service Brokers and Service Providers, in both Provider-Centric SOA and Consumer-Centric SOA perspectives over a Grid. this paper specified the role of E-Services to promote commercial and governmental unbundling affairs by way of marinating the Global Village Governance model which developed to leverage E-Governments, E-Businesses and ECommerce though just the added-value E-Services.

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