

SERVICE ACCESS GATEWAY**FIELD OF THE INVENTION**

[0001] The invention relates to communication of content between external domains and the mobile network domain and to the provision of services and the management of services and service and content providers located outside the mobile network domain.

PRIOR ART DISCUSSION

[0002] It is known to provide a server for bridging the Internet and mobile network domains, as described in European Patent Specification No. 1079315A2. This server receives a request for a document and passes a request to an origin server. It receives the document from the origin server and performs a syntactical transcoding using client semantics preferences. There are both syntactical and protocol transcoders in the server.

[0003] The invention is directed towards providing a service access gateway meeting some or all of the following objectives:

[0004] being particularly versatile for set-up for operation in a particular environment, and/or

[0005] allowing interaction in a controlled manner with multiple application providers (APs) in the Internet domain, even if they are aggregated in which a single AP server is in turn linked on to group(s) of further APs, and/or

[0006] caters in a controlled manner with convergent content formats, in which content of a first format affects content of a second format to provide an output content with a third format, and/or

[0007] allows interaction in a controlled manner between application providers and services with a multiplicity of network bearers and services to facilitate the provision of applications which combine such multiple bearers and services into single 'convergent' subscriber services.

SUMMARY OF THE INVENTION

[0008] According to the invention, there is provided an access gateway comprising:

[0009] a content server interface,

[0010] a mobile network interface, and

[0011] a processor for bi-directionally routing content-rich messages between said interfaces.

[0012] In one embodiment, the processor comprises a plurality of services, including an edge service for interfacing with the content server interface and an edge service for interfacing with the mobile network interface.

[0013] In another embodiment, each service includes a plurality of components, each for operating autonomously within the service in communication with other components within the same service.

[0014] In a further embodiment, each service comprises a queuing mechanism and an event dispatcher, and each component places an output message in a queue of the

queuing mechanism and the event dispatcher routes events from the queue to next components of the service.

[0015] In one embodiment, each service comprises routing information stored at creation of the service and the event dispatcher routes events according to said routing information.

[0016] In another embodiment, the gateway further comprises a middleware internal communications mechanism and each service comprises a middleware handler for retrieving messages from a channel of the middleware communications mechanism and a handler for placing messages on a channel of the middleware communications mechanism.

[0017] In a further embodiment, a single handler of each service both retrieves messages and places messages.

[0018] In one embodiment, at least one service comprises a content protocol converter component.

[0019] In another embodiment, said component converts between an external content protocol and a content protocol which is internal to the gateway and is used for processing of content by the gateway between the two interfaces.

[0020] In a further embodiment, at least one service comprises a logic rule component for processing message content.

[0021] In one embodiment, the processor comprises a work flow manager for routing messages within the gateway.

[0022] In another embodiment, the work flow manager routes a message by parsing a message to determine a routing list.

[0023] In a further embodiment, the work flow manager embeds a routing list within the message.

[0024] In one embodiment, the work flow list is embedded as an extension to an internal-format mark-up language within the message.

[0025] In another embodiment, the work flow manager is a service within the gateway.

[0026] In a further embodiment, the gateway comprises a middleware communications mechanism, the work flow manager service subscribes to a default middleware channel, and an edge service automatically places a message received at either server interface onto the default channel.

[0027] In one embodiment, each service places a message onto the default channel if it does not detect a next service indicator in the work flow list.

[0028] In another embodiment, a service is a transaction logging service and said service terminates a message by storing message data if there is no next service in the work flow list.

[0029] In a further embodiment, the processor performs convergence by using a plurality of messages with different content formats to generate an output message with a different content format.

[0030] In one embodiment, the processor performs convergence by using a plurality of messages with differing underlying bearers to provide a single coherent message.