StreamCom: Business Analysis and System Design Specification

(Deliverables: M2, M7)

Technical Report #

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1.Introduction

This report represents the work of several people within the framework of the StreamCom project. This work, done together with our colleges from the University of St. Gallen[1], covers the modeling part of StreamCom. The aim of the modeling part of the StreamCom project includes the following goals (see Figure 1):

- Specify the main business actors, business activities and business environment for the StreamCom project (done by ICA).
- Specify the Generic Components model for streamed information distribution (done by MCM).
- Provide a system design that specifies one of the possible system's behaviors that is based on the StreamCom Business Analysis and use the StreamCom Generic Component model (done by ICA).

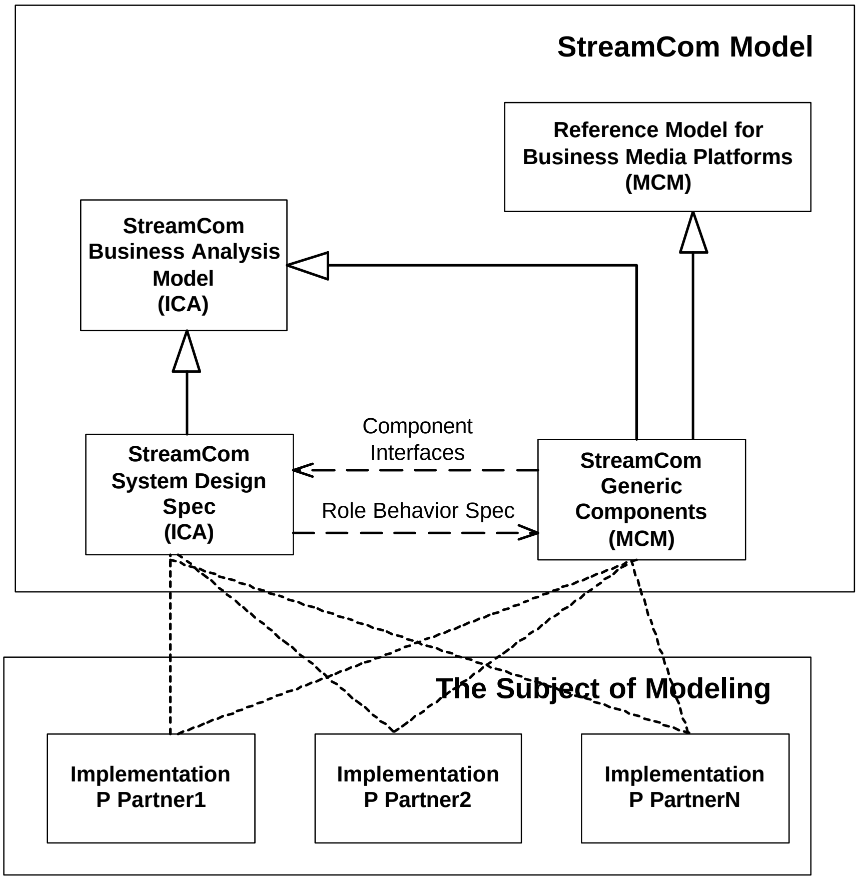

StreamCom Model
Reference Model for Business Media Platforms (MCM)
StreamCom Business Analysis Model (ICA)
StreamCom System Design Spec (ICA)
Component Interfaces
Role Behavior Spec
StreamCom Generic Components (MCM)
The Subject of Modeling
Implementation P Partner1
Implementation P Partner2
Implementation P PartnerN

Figure 1 Main Modeling Deliverables

[1] See: Markus Greunz, Katarina Stanoevska-Slabeva « Generic Components that enable Business Models for Content Streaming», Universität St. Gallen – Hochschule für Wirtschafts-, Rechts- und Sozialwissenschaften (HSG)

The StreamCom Business Analysis Model done by ICA uses generic actors and generic business actions (or collaborations), represented in the StreamCom Generic Components Model. According to the General System Theory[2], any “system is inseparable from its environment”. This means that the consideration of the environment of a system is important in understanding the system itself. That is way one of the main goals of the business analysis is to consider the environment of systems that can be build on the base of the StraemCom platform. In this work we have considered the following business actors in the StreamCom environment: Ads Provider, Stream Owner, Stream Publisher, Monitor Company (see the Section 2.1).

The StreamCom Generic Components part is done by MCM. “Components of a generic business model can be viewed as a template for specific business models which factors out a set of assumptions that all specific business models derived from it will have in common while leaving open some aspects that are to be decided on a case by case basis”

The SteamCom System Design Specification[3] describes one of several possible design choices that can be done based accordingly to StramCom Business Analysis model. The presented here design corresponds to the implementation of the demonstrator done by programming partners. The SteamCom System Design Specification complements the Generic Component Model. While the Generic Components model specifies components for the StreamCom platform, the System Design model specifies the example of system behavior that can be built using such components.

Let’s also note that this report as well as the report provided by MCM does not specify all the technical details of implementations provided by StreamCom programming partners. Specification artifacts allow to understand the overall project ideas and to see how technical solutions from different partners can be integrated into one system.

This report was automatically was build from the UML model done in the Rational Rose case tool[4]. The structure of this report is the following: In section 2 of this report we show the specification of the StreamCom Business Analysis Model (Deliverable M.2 accordingly to the plan of the project). In section 3 of this report we show the implementation model (Deliverable M.7 accordingly to the plan of the project).

[2] L. Von Bertalanffy, *General System Theory*. New York: George Braziller, 1968

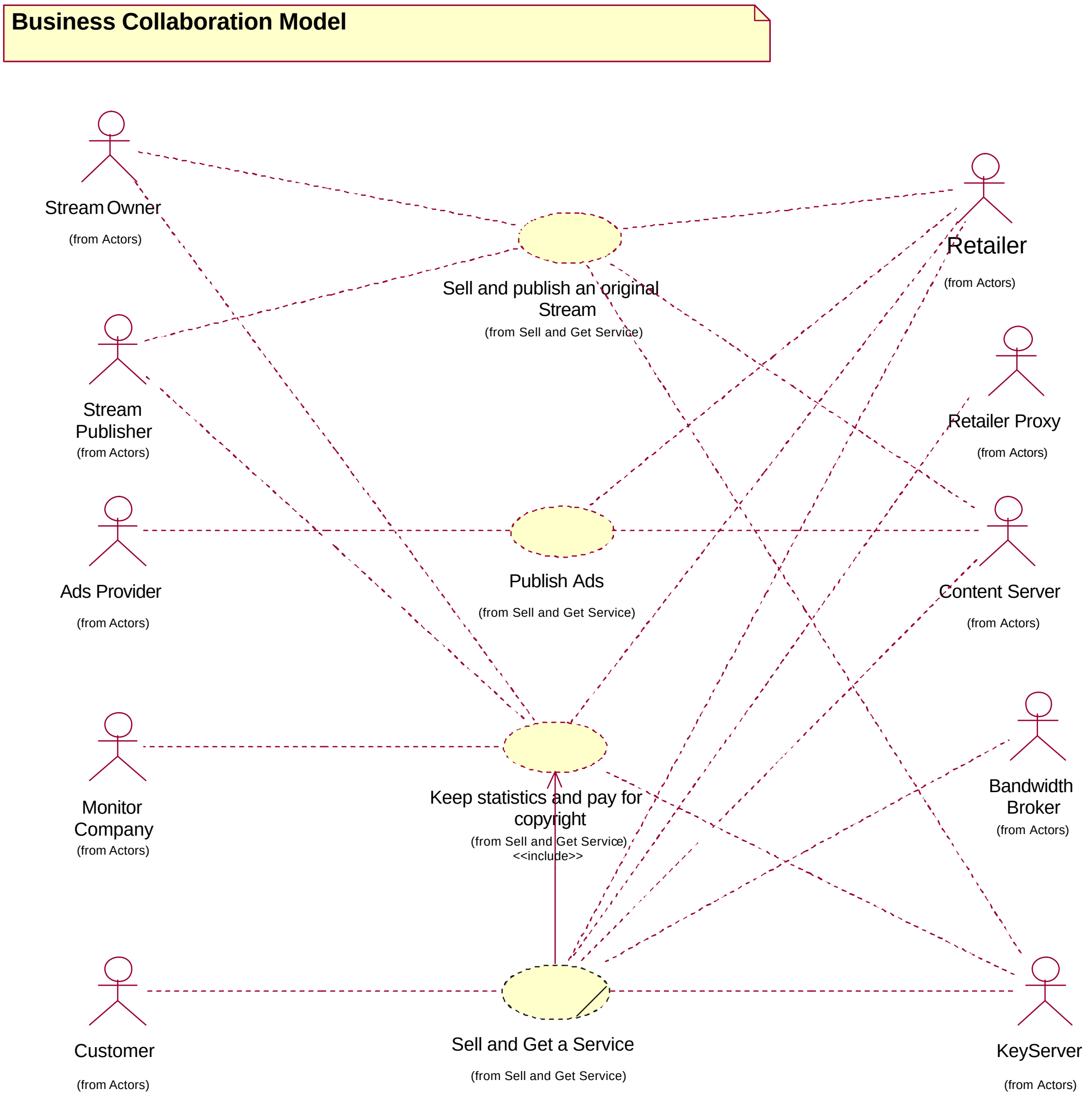
[3] The System Design specification still can have some minor changes till the end of the project.

[4] To get the Rational Rose model please send a request to Pavel Balabko: pavel.balabko@epfl.ch

2. Business Analysis Spec

The Business Analysis Specification represents the result of the analysis of several existing systems dealing with streaming of the information over the Internet and the environment of these systems. Here we show just only the resulting model that gives the business context for systems based on the StreamCom framework. For details on the analysis see http://in3www.epfl.ch/~pbalabko/Projects/StreamCom/AsIsToBeModels.pdf

2.1. Collaboration Model



Glossary

Ads Provider

An Ads Provider provides advertisement to Retailer in order to give it to Customer

Stream Owner

A Stream Owner owns streams he wants to sell on the market

Stream Publisher

A Stream Publisher prepares streams for reselling

Monitor Company

A Monitoring Company observes all the traffic activity of selling streams

Customer

A Customer is anyone who is interested in getting or previewing a Stream

KeyServer

A Key Server works like a Digital Rigth Manager. It is responsible for the digital keys distribution used for encrypting and decrypting online streams

Bandwidth Broker

A BandWidth Broker BB is responsible for the bandwidth reservation

Content Server

A Content Server disseminates service to Customer by broadcasting encrypted message which is a part of a stream

Retailer

A Retailer sells streams (provided by the Content Provider) to Customer

Retailer Proxy

Retailer Proxy goal is to collects offers from different customers and matching them in an optimal way. This optimization results in SLA/OLAs messages send to a retailer.

2.2. Collaboration Spec

2.2.1. Sell and Get a Service

Documentation:

Purpose:

The Purpose of this collaboration is to sell a Service from a Retailer to a Member. The service can be provided in the form of CDs, DVDs or on-line streams.

Participants:

One Member (Customer) who buys the stream
One Retailer who sells the Stream
Retailer Proxy who collects and optimizes customer requests.
One Content Server who broadcasts the stream (in case of Online Stream)
One KeyServer who sells keys for security (in case of Online Stream)
One Bandwidth Broker who reserves for bandwidth requirement (in case of Online Stream)

Pre-Conditions:

ServiceCatalog exists
Credit card number exists

Policies:

The Member should be provided with an on-line stream version of the service when he buys it on CD or DVD.
Customer can get on-line service just on the specified computer (due to reservation)
A Stream can include ads from the Ads provider
The Bandwidth Broker should reserve required bandwidth for on-line stream.
The Retailer has the right to start a bandwidth reservation
Relationships between Retailer, Content Server, Key Server, Bandwidth Broker exist.

Non-functional Requirements (Security Requirements):

Any exchange of information between Participants should be done in a secure way.
Customer and Retailer should exchange money against ticket using fair-exchange protocol.
Retailer and Content Server should be able to identify clients that using provided services illegally.

Post-condition:

PC1. A Customer became a Member (for the first time only)
PC2. A Customer got a Service (content and keys).

PC3. A Retailer got money from the Customer.

PC4. A Content Server, A Key Server and A Bandwidth Broker got money from the Retailer for co-operatively providing stream content to a customer (by means of redeeming tickets).

PC4. A Client got Service Level Agreement (SLA)

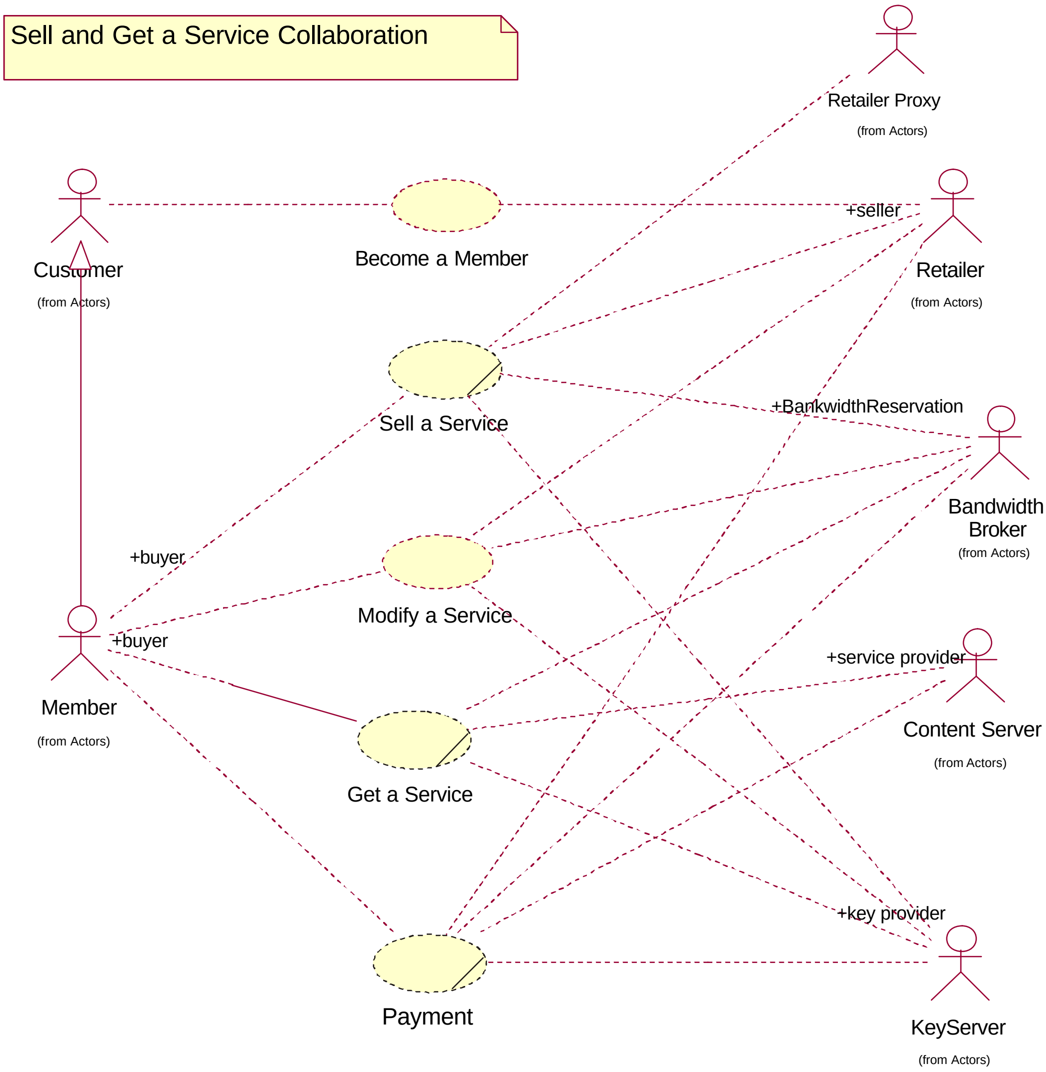
PC5. A Retailer Proxy got Operational Level Agreement (OLA)

PC6. A KeyServer got a ticket and micro-payments from the client.

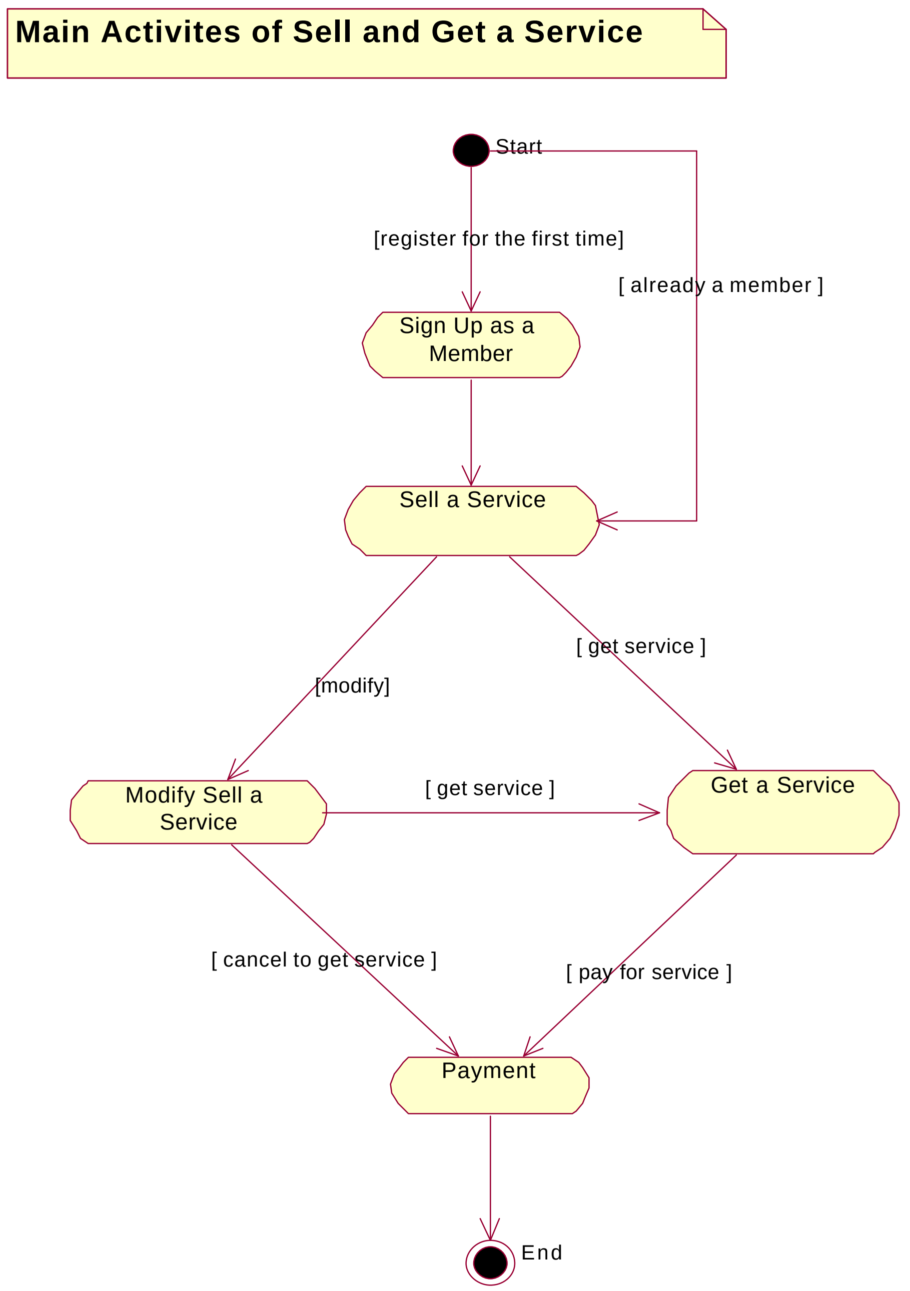
PC7. A Retailer got confirmation of QoS with OLA.

Note: The stream can be copied to the user device like CD, or MP3 player (if the customer does not have any copy restrictions).

Sell and Get a Service



Sell and Get a Service Activity Diagram



Sell a Service

Documentation:

Purpose:

The purpose of this collaboration is that a Member gets a Service (on-line stream Ticket or hard copy) of his choice from a Retailer and pays for it with a credit card. In the case of an on-line stream, the Member also gets a Ticket and a key that allows him to start the Video

Parameters:

Identification information (MemberId and Password, RetailerId, ContentServerId ...)
Name of the service (video or TV channel)
Service information
Bandwidth require
Payment information (ex: credit card number).

Pre-Conditions:

ServiceCatalog exists
Relationships between Retailer, Content Server, Key Server, Bandwidth Broker exist

Post-Conditions:

A Customer became a member of Retailer (for the first time only)
A Member got a Ticket and key
A keyServer got a TicketID (or Ticket)
A bandwidth reservation is done by Bandwidth Broker
A Retailer got a reference to the Customer's paying facilities (credit card, or address for issuing a bill)
A customer got hard copy (not mandatory)

Non-functional Requirements (Security Requirements):

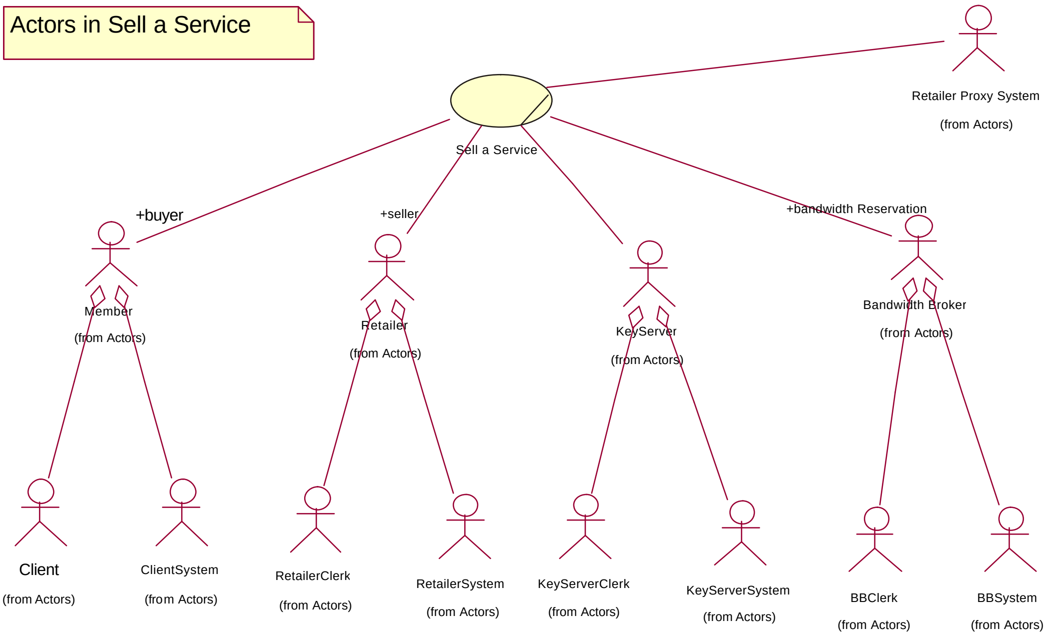
Any exchange of information between Participants should be done in a secure way.
Customer and Retailer should exchange money against ticket using fair-exchange protocol.

Basic Course of Events:

1. [A new Service Provider] registers at Retailer.
2. [Client] Registers in the system.
3. [Retailer] Sends information (Mainly it is some advertisement information, some bonuses, special offers, based on the UserProfile).
4. [Member] Chooses a service title and type (on-line stream, DVD, CD) and specifies the number of minutes/views/copies. The Member can see the service description and preview if necessary.
5. [Client] sends requests SLA message to RetailerProxy.
6. [RetailerProxy] sends a OLR message to Retailer.
7. [Retailer] sends request for QoS accordingly to OLR to BB

8. [Bandwidth Broker] Setup bandwidth reservation and sends confirmation message to Retailer.
9. [Retailer] sends the OLA message to RetailerProxy and price information to Client
10. [RetailerProxy] sends the SLA message to Client
11. [Client] Enters payment information (credit card number or address for issuing a bill).
12. [Retailer] create a Ticket and sends a Ticket to Customer.

Actors in Sell a Service



Get a Service

Documentation:

Purpose:

The Purpose of this UC is to get a Service bought in the "Buy a Service" UC and specified by the TicketId. A customer can get the service in several pieces that are broadcasted by the Content Server.

Note: A customer can get his Service (stream) in the "hard copy" (in form of CD, DVD etc). The ticket is not used in that case.

Parameters;

TicketId
Ticket, Key

Pre-Conditions:

Customer had a Ticket and key
Content server had an Online-Service
Bandwidth between Content server and Customer is ensured

Post-Conditions:

Customer got/viewed an On-line Service
KeyServer got Ticket and Micro-payments
Bandwidth reservation is deleted

Non-functional Requirements (Security Requirements):

Any exchange of information between Participants should be done in a secure way.
Retailer and Content Server should be able to identify clients that using provided services illegally.

Main Course of Events:

1. [Customer] Sends the Ticket to the KeyServer of Content Server

2. [Customer] Sends micro-payments to Keyserver

3. [KeyServer] Sends decryption key to Customer

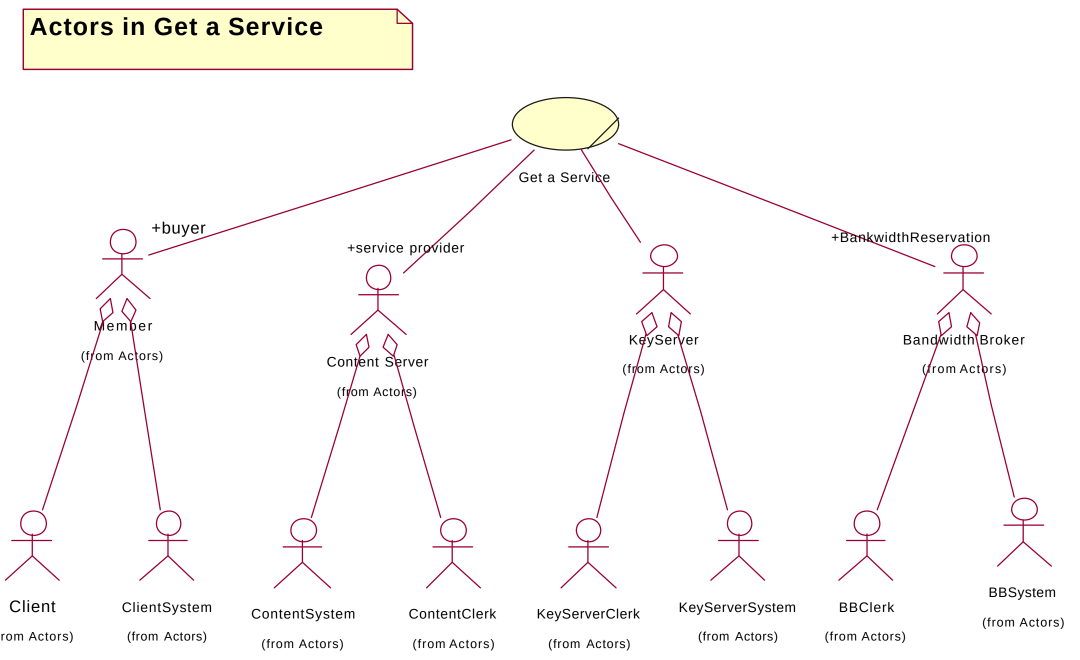
4. [Customer] Receives and decrypts messages (content)

5. Repeats event 2 – 4

[1-5] Content Server broadcasts the content
[1-5] We ISP supports QoS for the Customer

Actors in Get a Service

Documentation:



Payment

Purpose:

The Purpose of this UC is that the Retailer redeem money to KeyServer, Content Server and Bandwidth Broker

Parameters;

The last second half of micropayment token

Pre-Conditions:

Key Server got Ticket and micro-payment tokens

Post-Conditions:

KeyServer got money from Retailer
ContentServer got money from Retailer
Bandwidth Broker got money from Retailer

Main Course of Events:

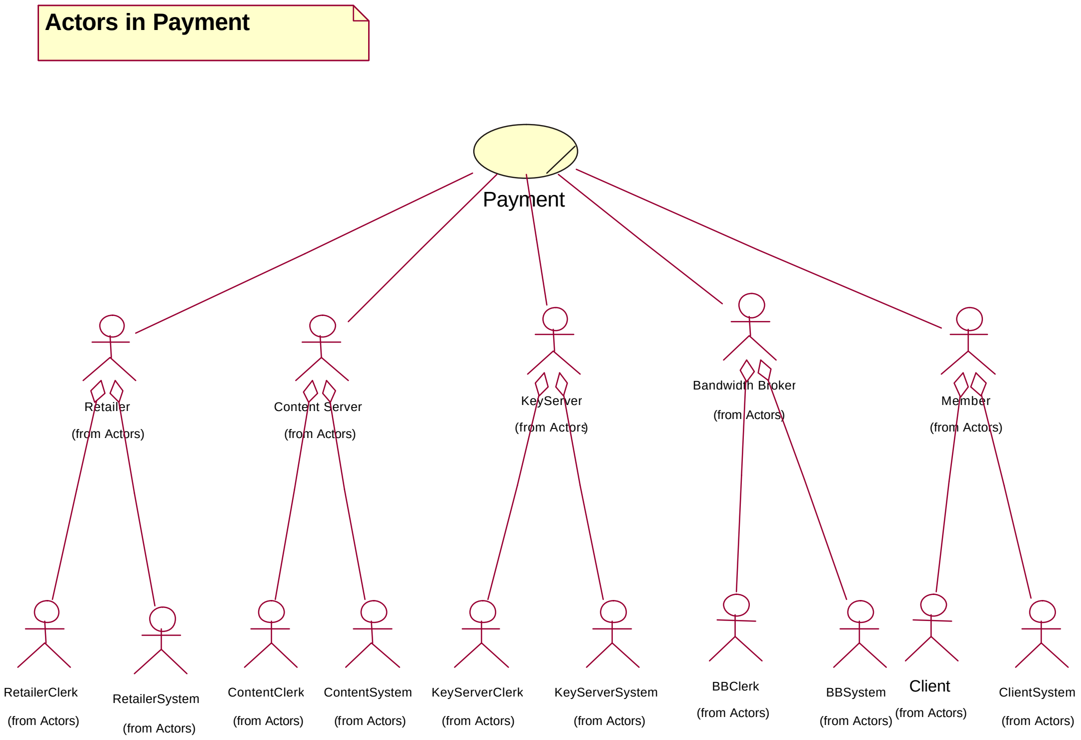
1. [KeyServer] Sends the Ticket identifier and the last received micro-payment token to Retailer.

2. [Retailer] Verifies the Ticket and the last micro-payment token

3. [Retailer] Calculates redeem money correspondent to Ticket and the last half token

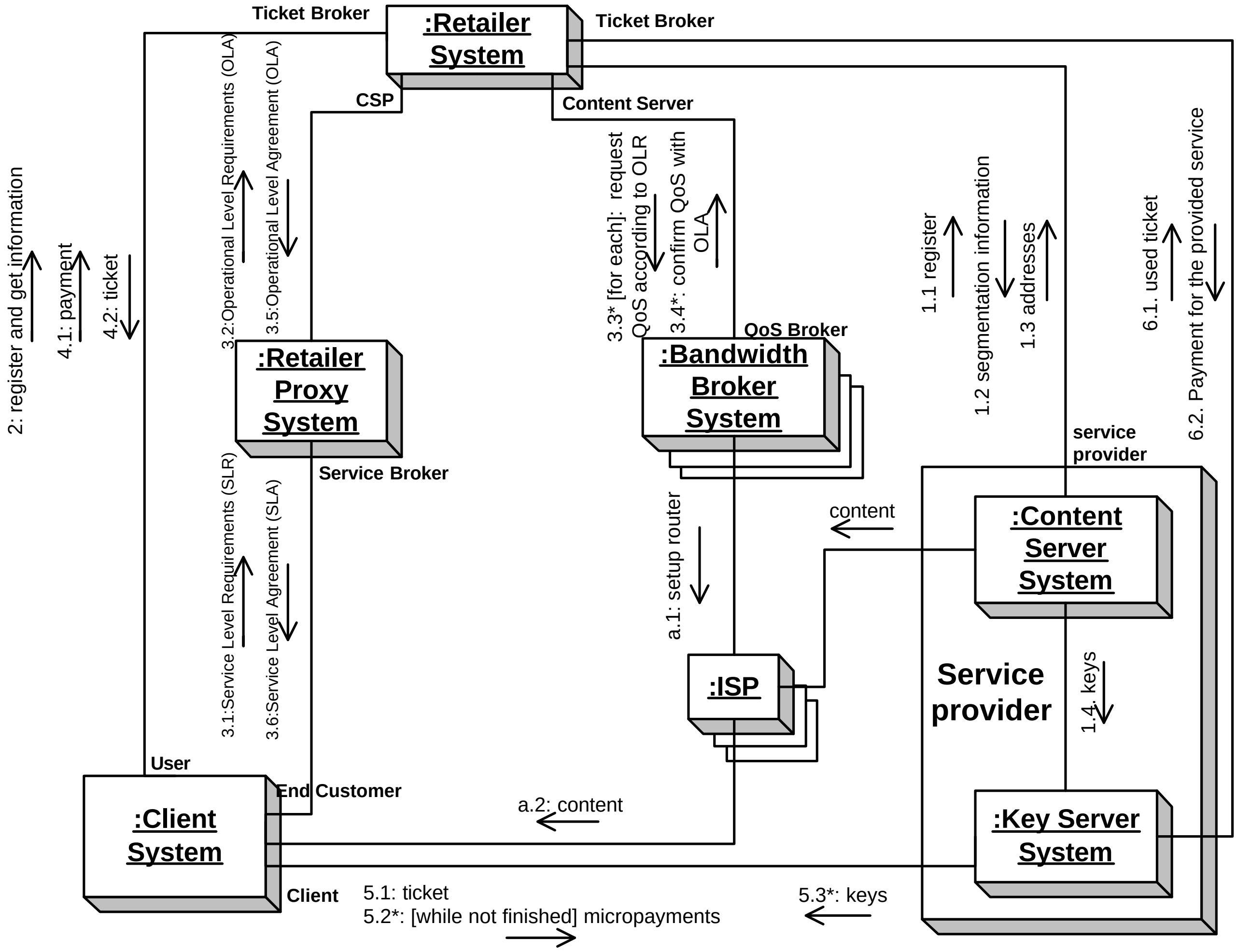
4. [Retailer] Pays for KeyServer, ContentServer, RetailerProxy and Bandwidth Broker.

Actors in Payment

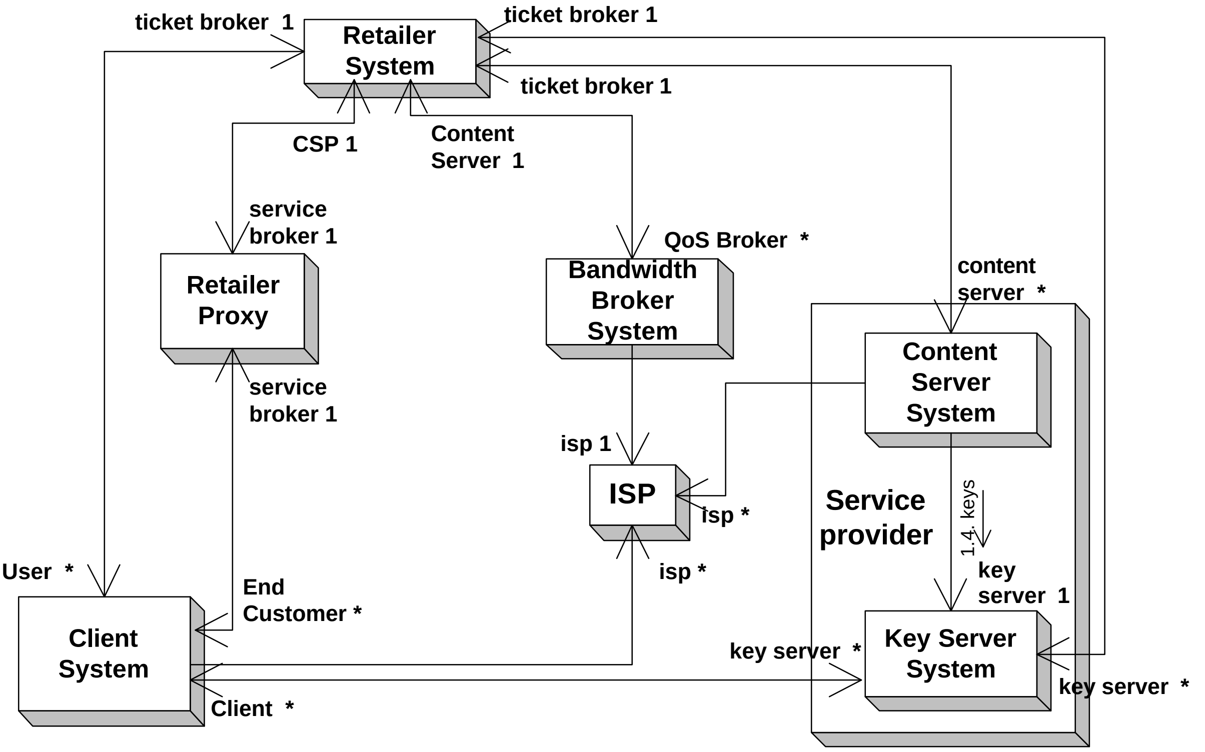


“StreamCom General Architecture”: an Example of the Business Scenario

The following collaboration diagram (instance level) represents a possible scenarios based on “Sell a service”, “Get a Service” and “Payment” Collaborations. This typical scenario gives the general understanding of the main StreamCom Systems and the way how these system collaborate together.



The following collaboration diagram (specification level) specifies the main business systems, they relations and cardinalities.



3. IT System Design

The System Design in the StreamCom project (see Figure 2) represents the composition of 5 subsystems implemented by different programming partners. The specification of each subsystem includes the behavior (done with activity diagrams here) and state (done with class diagrams here) specifications.

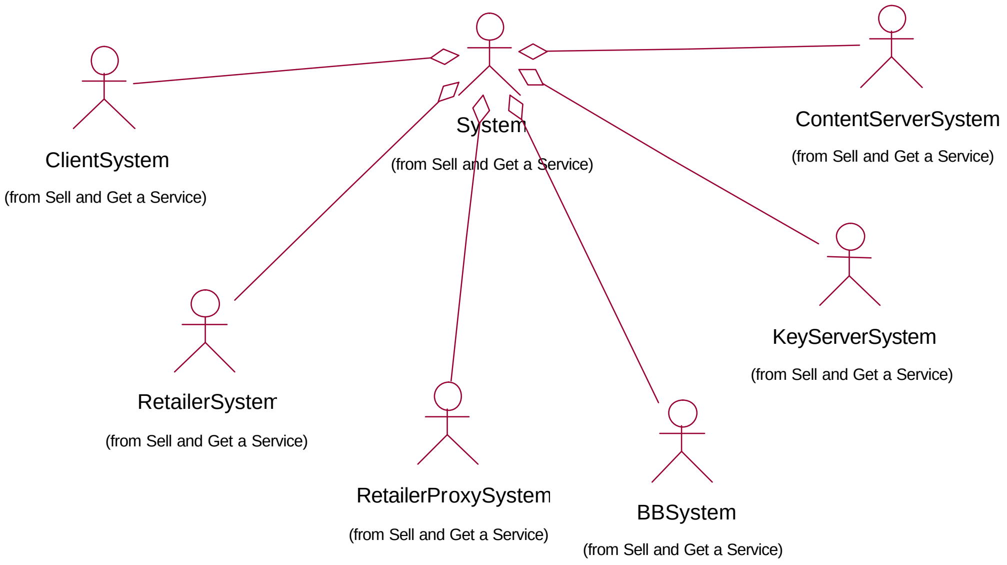
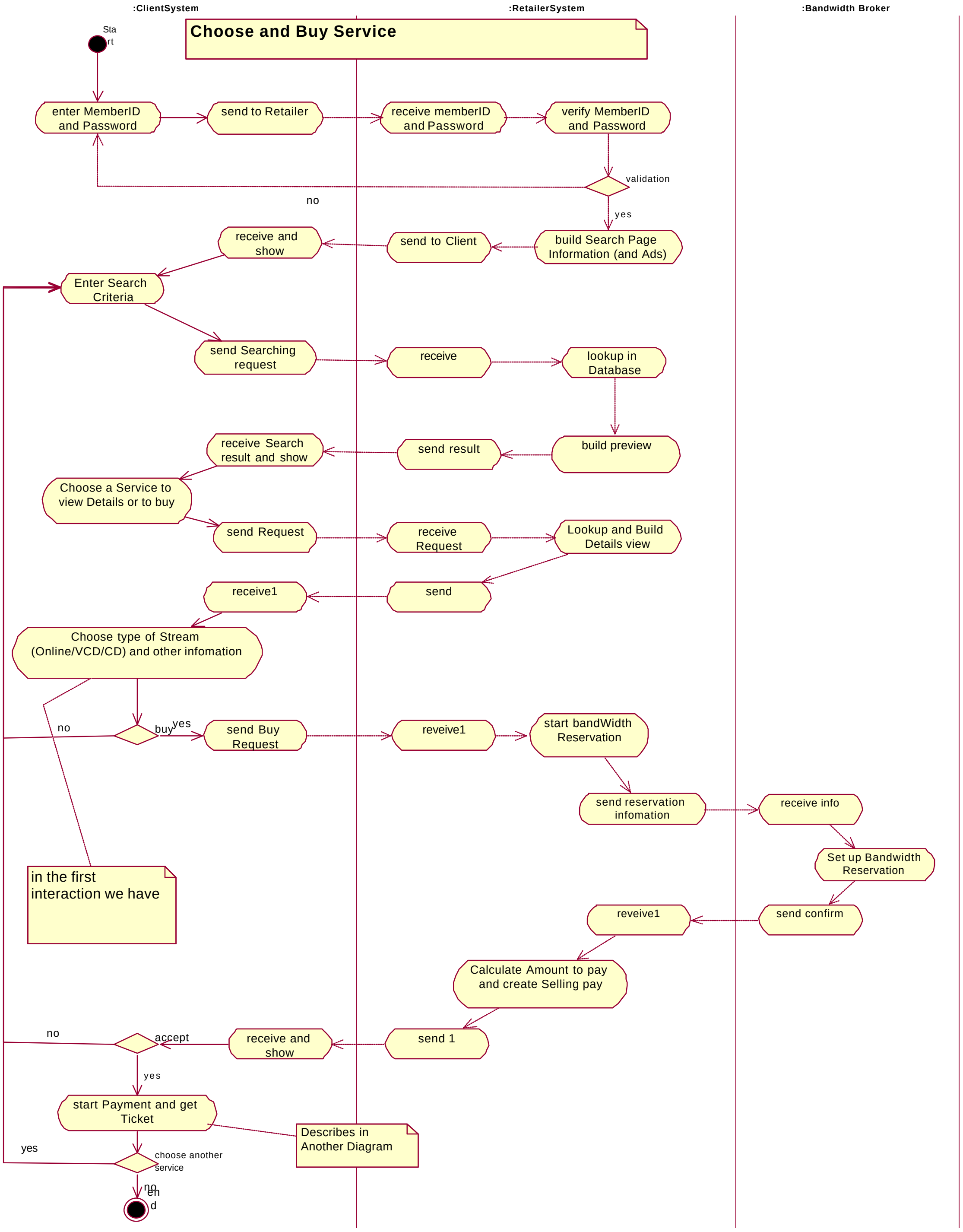
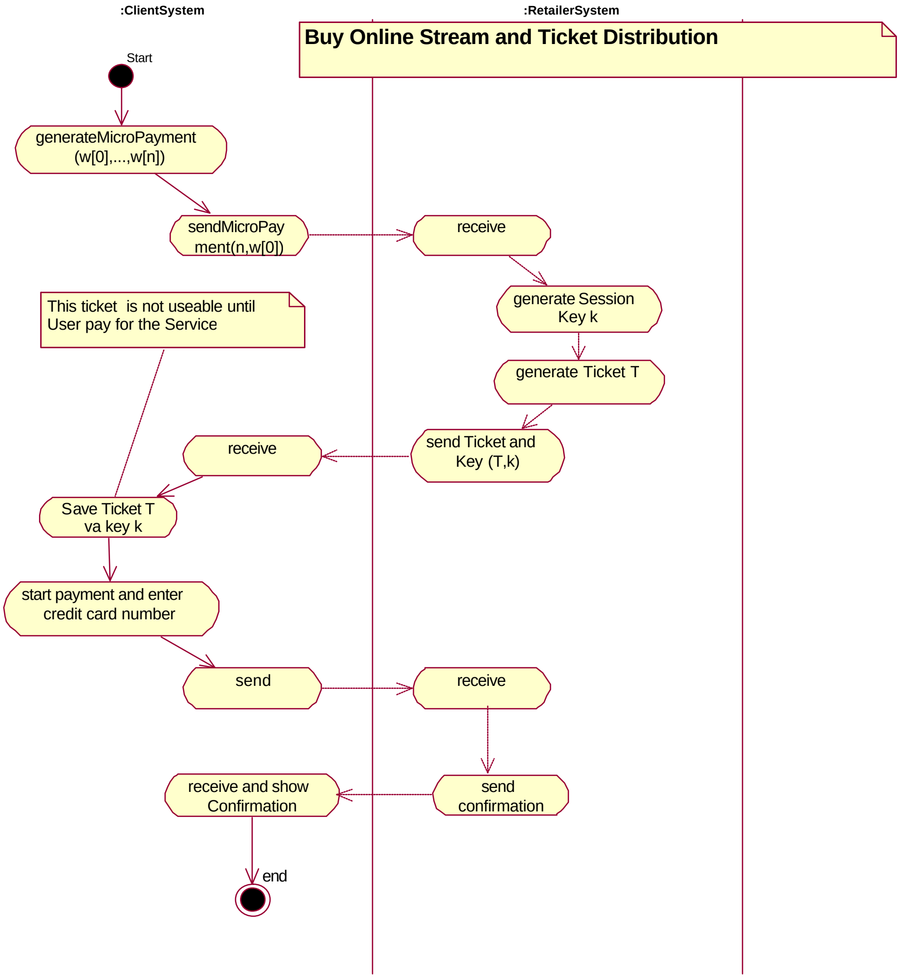

System
(from Sell and Get a Service)
ClientSystem
(from Sell and Get a Service)
ContentServerSystem
(from Sell and Get a Service)
KeyServerSystem
(from Sell and Get a Service)
RetailerSystem
(from Sell and Get a Service)
RetailerProxySystem
(from Sell and Get a Service)
BBSystem
(from Sell and Get a Service)

Figure 2 System in StreamCom Project

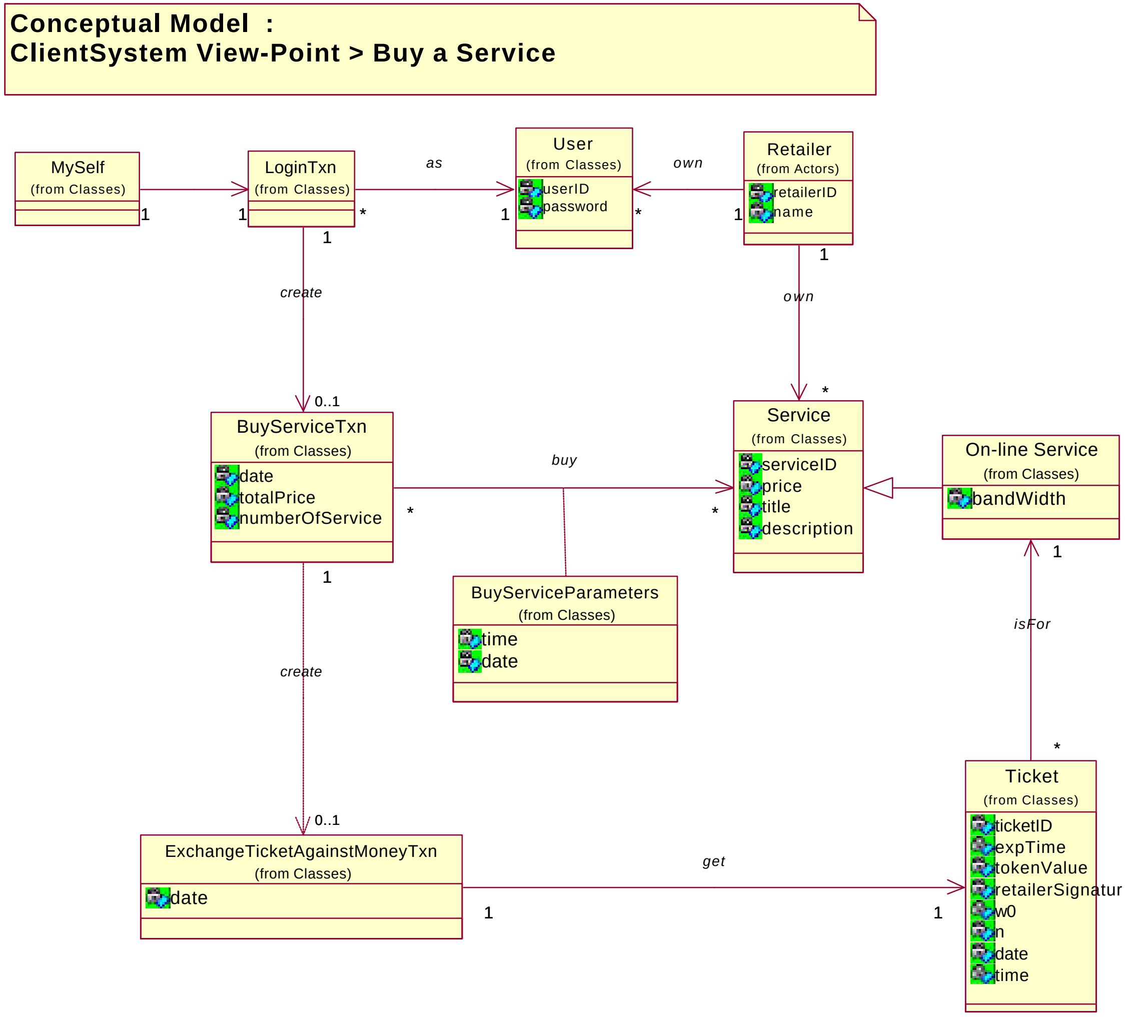
Activity Diagram : Choose Service


:ClientSystem
:RetailerSystem
:Bandwidth Broker
Choose and Buy Service
Sta rt
enter MemberID and Password
send to Retailer
receive memberID and Password
verify MemberID and Password
validation
no
yes
receive and show
send to Client
build Search Page Information (and Ads)
Enter Search Criteria
send Searching request
receive
lookup in Database
receive Search result and show
send result
build preview
Choose a Service to view Details or to buy
send Request
receive Request
Lookup and Build Details view
receive1
send
Choose type of Stream (Online/VCD/CD) and other infomation
no
buy
yes
send Buy Request
reveive1
start bandWidth Reservation
send reservation infomation
receive info
Set up Bandwidth Reservation
reveive1
send confirm
in the first interaction we have
Calculate Amount to pay and create Selling pay
no
accept
receive and show
send 1
yes
start Payment and get Ticket
Describes in Another Diagram
yes
choose another service
no
en d

Activity Diagram: Buy Online Stream and Ticket Distribution


:ClientSystem
:RetailerSystem
Buy Online Stream and Ticket Distribution
Start
generateMicroPayment (w[0],...,w[n])
sendMicroPay ment(n,w[0])
receive
generate Session Key k
This ticket is not useable until User pay for the Service
generate Ticket T
receive
send Ticket and Key (T,k)
Save Ticket T va key k
start payment and enter credit card number
send
receive
receive and show Confirmation
send confirmation
end

Conceptual Model : ClientSystem View-Point



Glossary

BuyServiceParameters
Concept representing some information when buy a Service

On-line Service
Concept representing a Service in form of an Online Service

MySelf

User
Concept representing one User of the System, i.e. a Member

Retailer
A Retailer sells streams (provided by the Content Provider) to Customer

Ticket
Concept representing a ticket that is used to get an online Service

LoginTxn
Concept representing information regarding the action of a Customer login on the System

Service

Concept representing any kind of Service

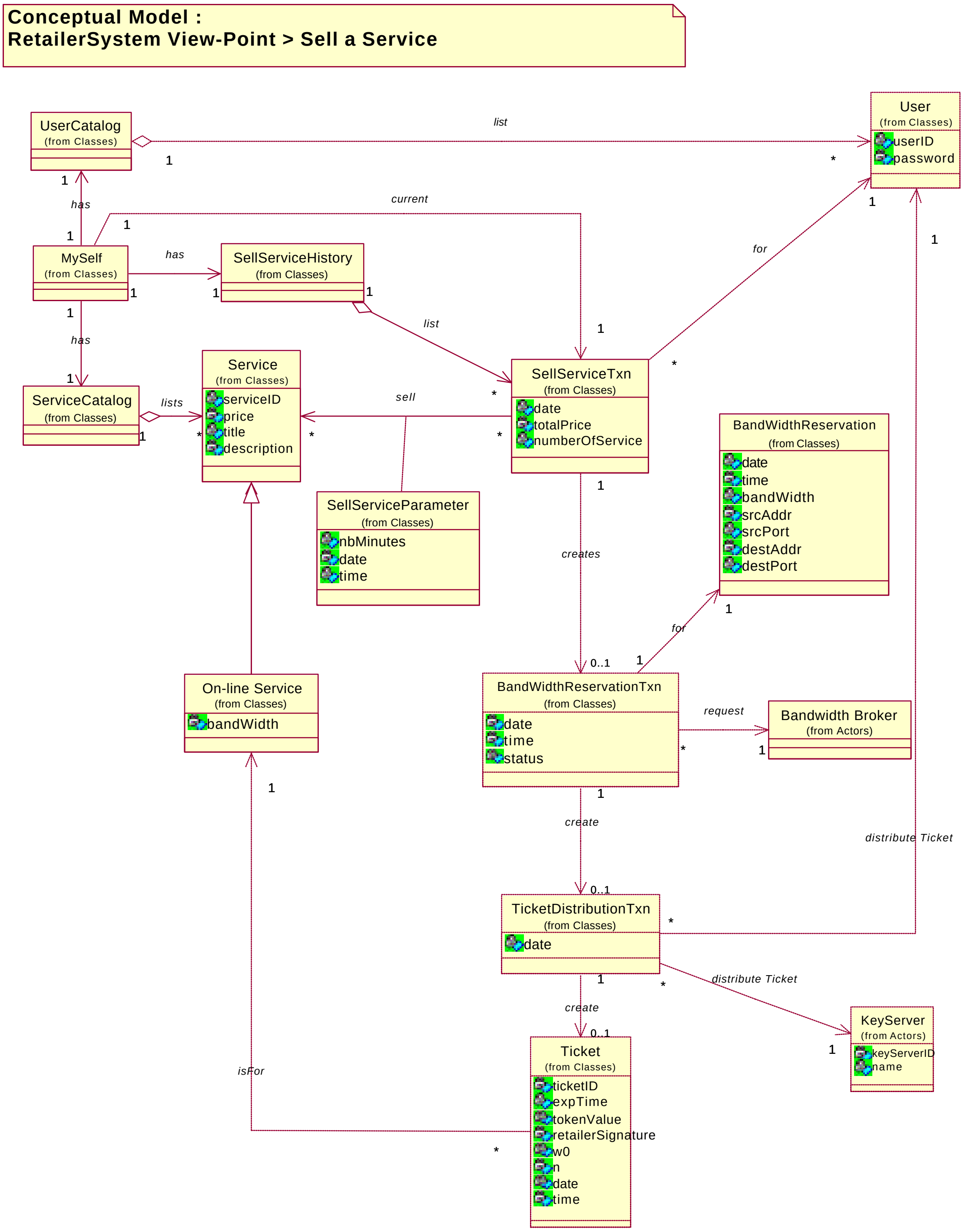
ExchangeTicketAgainstMoneyTxn

Concept representing information regarding the action of buying Ticket for an online service

BuyServiceTxn

Concept representing information regarding the action of buying Services

Conceptual Model : RetailerSystem View-Point



Glossary

SellServiceParameter

Concept representing the different way a Service can be bought, i.e. payment per views, payment per time and payment per copy

ServiceCatalog

Concept representing all ServiceSpecs

SellServiceHistory

Concept representing all past Sell Service Transactions

Service

Concept representing any kind of Service

MySelf

On-line Service

Concept representing a Service in form of an Online Service

Bandwidth Broker

A BandWidth Broker BB is responsible for the bandwidth reservation

BandWidthReservation

Concept representing the bandwidth reserve for an on line service

UserCatalog

Concept representing all User concepts

SellServiceTxn

Concept representing information regarding the action of selling one or several Services

Ticket

Concept representing a ticket that is used to get an online Service

KeyServer

A Key Server works like a Digital Rigth Manager. It is responsible for the digital keys distribution used for encrypting and decrypting online streams

BandWidthReservationTxn

Concept representing information regarding the action of reserving the bandWidth

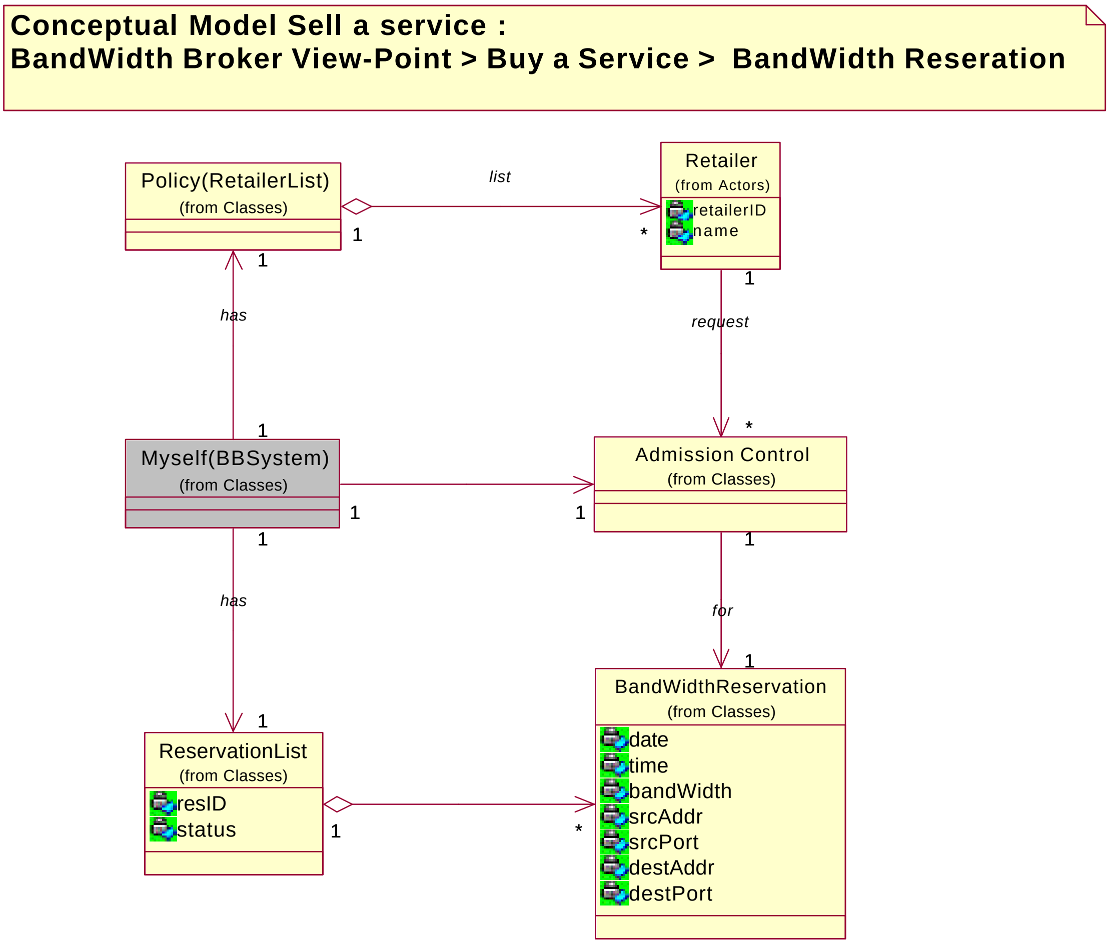
User

Concept representing one User of the System, i.e. a Member

TicketDistributionTxn

Concept representing information regarding the action of distributing the Ticket

Conceptual Model : BBystem View-Point



Glossary

Policy(RetailerList)

Concept representing all Retailer that has administrative permission to make reservation

ReservationList

Concept representing all BandWidth Reservation

Myself(BBSystem)

Retailer

A Retailer sells streams (provided by the Content Provider) to Customer

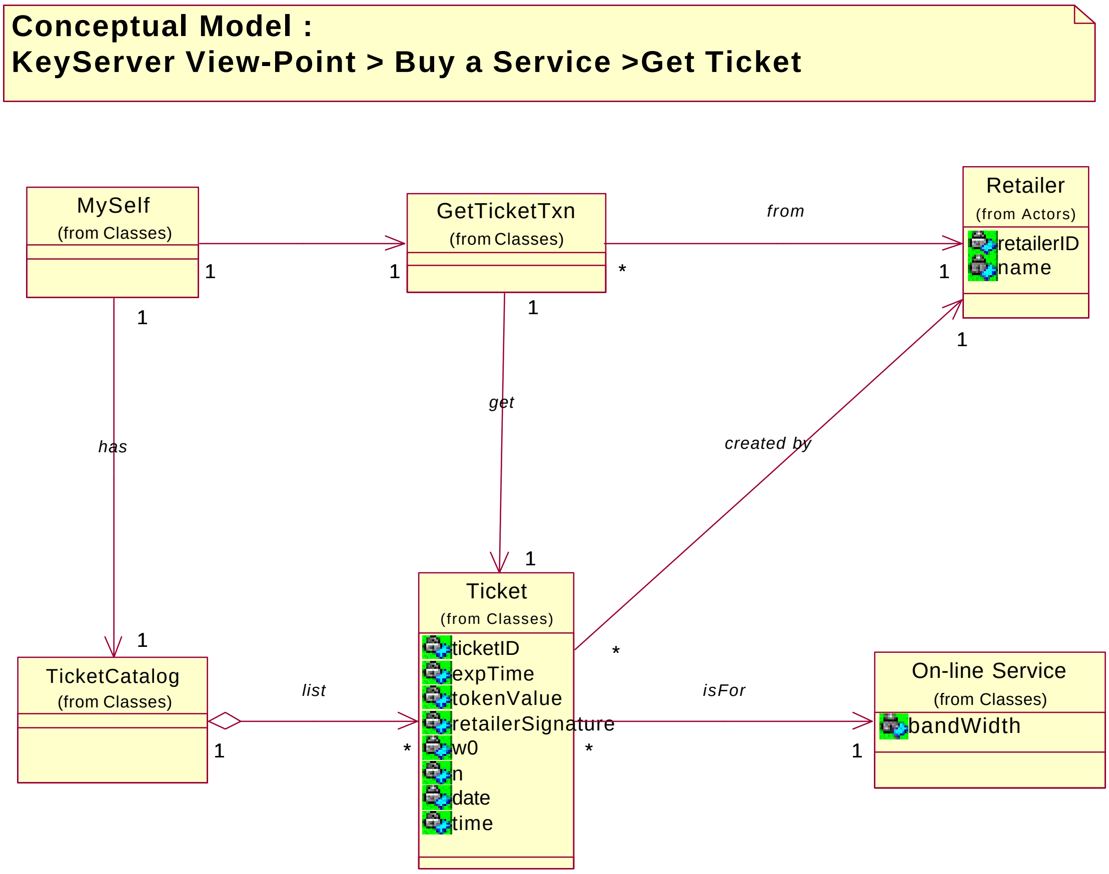
BandWidthReservation

Concept representing the bandwidth reserve for an on line service

Admission Control

Concept representing the action of setup Bandwidth Reservation

Conceptual Model : KeyServer View-Point



Glossary

Retailer

A Retailer sells streams (provided by the Content Provider) to Customer

On-line Service

Concept representing a Service in form of an Online Service

GetTicketTxn

Concept representing information regarding the action of getting Ticket that is stand for money

MySelf

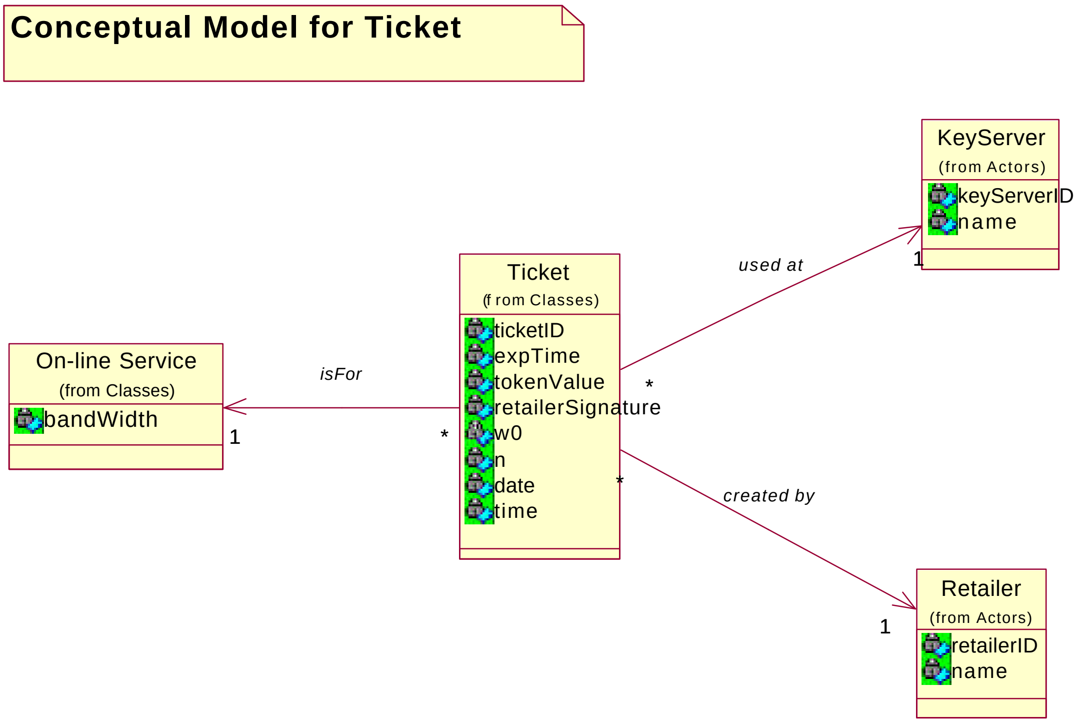
Ticket

Concept representing a ticket that is used to get an online Service

TicketCatalog

Concept representing all current Ticket of KeyServer

Conceptual Model : Ticket



Glossary

KeyServer

A Key Server works like a Digital Rigth Manager. It is responsible for the digital keys distribution used for encrypting and decrypting online streams

Retailer

A Retailer sells streams (provided by the Content Provider) to Customer

Ticket

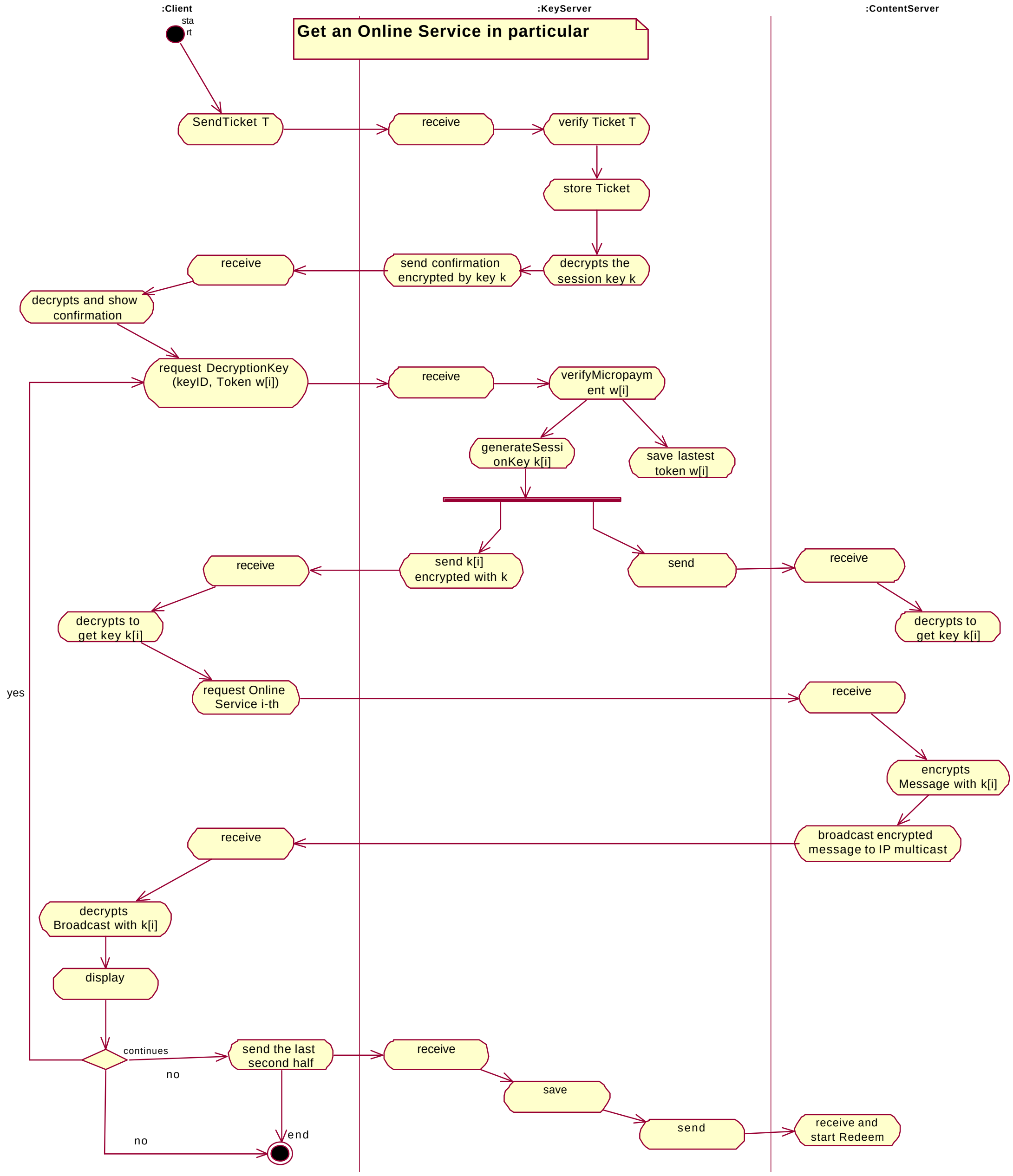
Concept representing a ticket that is used to get an online Service

On-line Service

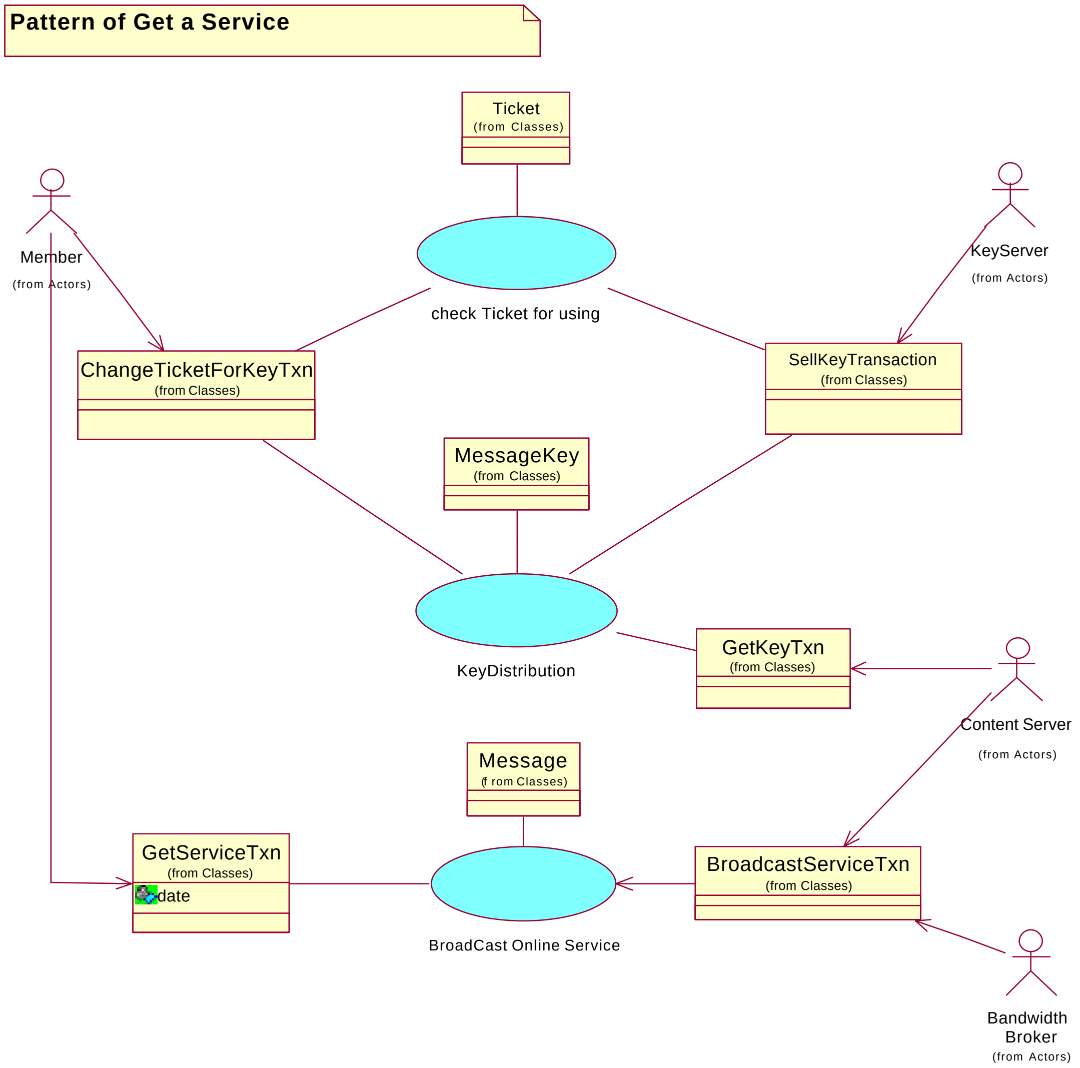
Concept representing a Service in form of an Online Service

3.1.1. Get a Service

Activity Diagram : Get a Service in particular


:Client
:KeyServer
:ContentServer
start
Get an Online Service in particular
SendTicket T
receive
verify Ticket T
store Ticket
decrypts the session key k
send confirmation encrypted by key k
receive
decrypts and show confirmation
request DecryptionKey (keyID, Token w[i])
receive
verifyMicropayment w[i]
generateSessionKey k[i]
save lastest token w[i]
send k[i] encrypted with k
send
receive
receive
decrypts to get key k[i]
decrypts to get key k[i]
yes
request Online Service i-th
receive
encrypts Message with k[i]
broadcast encrypted message to IP multicast
receive
decrypts Broadcast with k[i]
display
continues
no
send the last second half
receive
save
send
receive and start Redeem
end
no

Pattern of Get a Service



Glossary

Ticket

Concept representing a ticket that is used to get an online Service

MessageKey

Concept representing key to decrypt or encrypt a message that is a part of an Online Service

Message

Concept representing a message that is a part of an Online Service

ChangeTicketForKeyTxn

Concept representing information regarding the action of change Ticket for Key that is used to decrypt the online Service

Member

GetServiceTxn

Concept representing information regarding the action of getting a message that is a part of an Online Servie

Content Server

A Content Server disseminates service to Customer by broadcasting encrypted message which is a part of a stream

GetKeyTxn

Concept representing information regarding the action of getting key that is used to encrypt message before broadcasting

Bandwidth Broker

A BandWidth Broker BB is responsible for the bandwidth reservation

BroadcastServiceTxn

Concept represent information regarding the action of encrypting and broadcasting a message of an Online Service

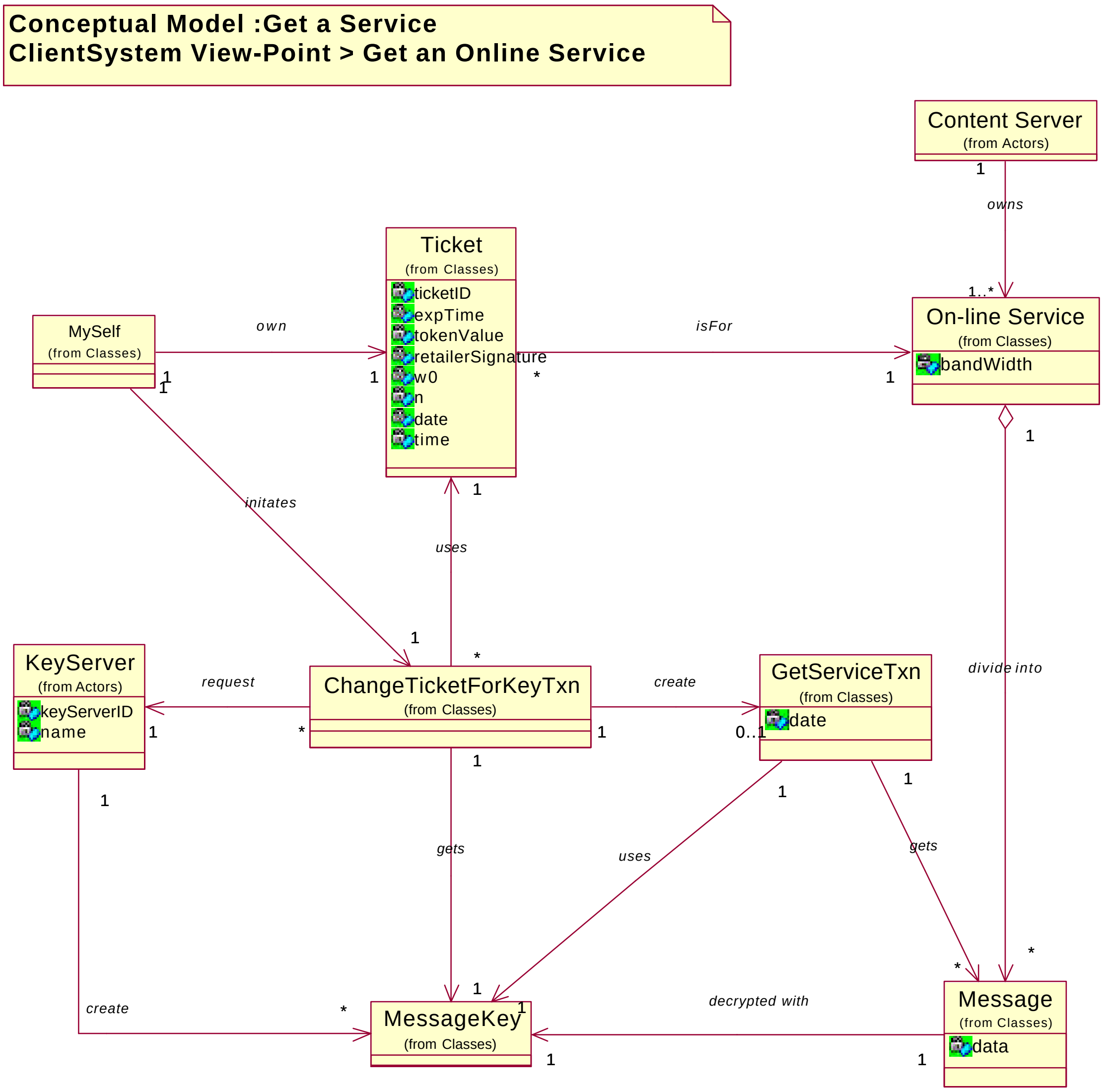
KeyServer

A Key Server works like a Digital Rigth Manager. It is responsible for the digital keys distribution used for encrypting and decrypting online streams

SellKeyTransaction

Concept representing information regarding the action of selling key that is used to encrypt or decrypt a message of an online service

Conceptual Model : ClientSystem View-Point



Glossary

Content Server

A Content Server disseminates service to Customer by broadcasting encrypted message which is a part of a stream

Message

Concept representing a message that is a part of an Online Service

On-line Service

Concept representing a Service in form of an Online Service

KeyServer

A Key Server works like a Digital Rigth Manager. It is responsible for the digital keys distribution used for encrypting and decrypting online streams

GetServiceTxn

Concept representing information regarding the action of getting a message that is a part of an Online Servie

MessageKey

Concept representing key to decrypt or encrypt a message that is a part of an Online Service

Ticket

Concept representing a ticket that is used to get an online Service

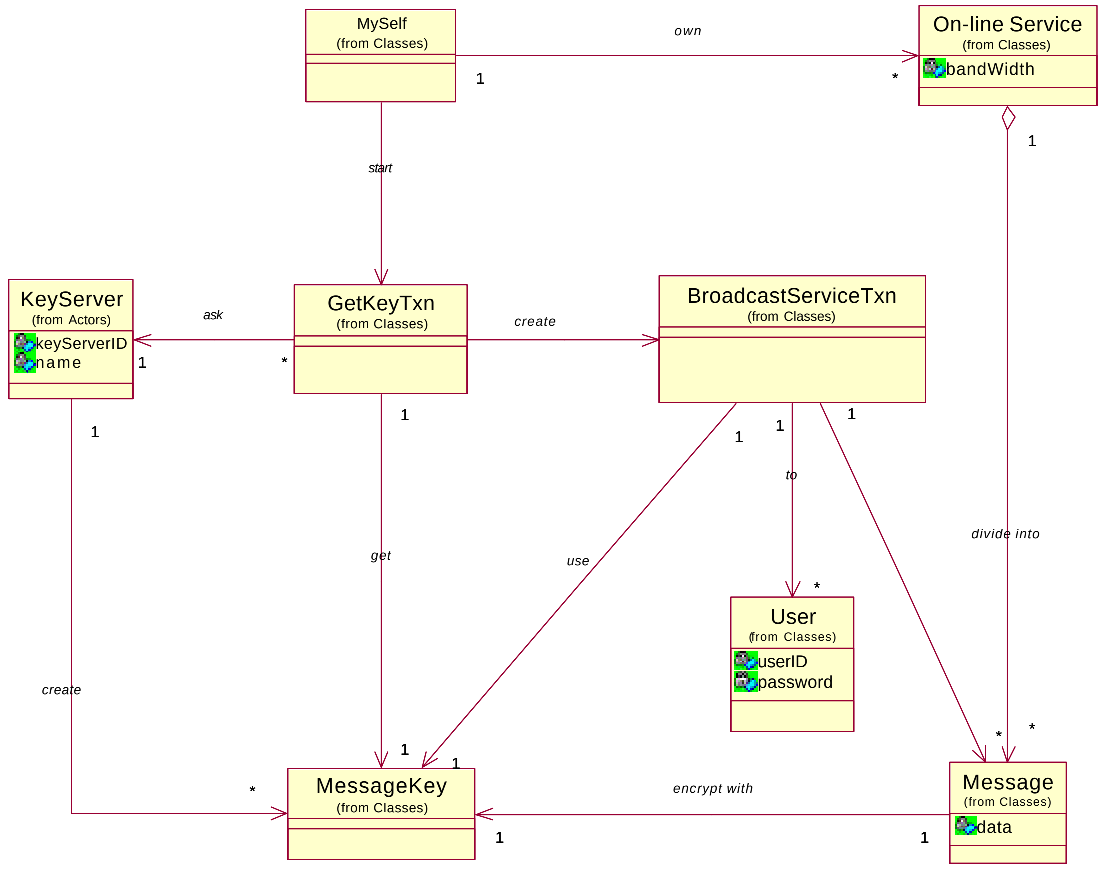
ChangeTicketForKeyTxn

Concept representing information regarding the action of change Ticket for Key that is used to decrypt the online Service

MySelf

Conceptual Model : ContentSystem View-Point

Conceptual Model : BroadCast Online Service
Content View-Point > BroadCast Online Service



Glossary

MySelf

On-line Service

Concept representing a Service in form of an Online Service

KeyServer

A Key Server works like a Digital Rigth Manager. It is responsible for the digital keys distribution used for encrypting and decrypting online streams

User

Concept representing one User of the System, i.e. a Member

GetKeyTxn

Concept representing information regarding the action of getting key that is used to encrypt message before broadcasting

Message

Concept representing a message that is a part of an Online Service

MessageKey

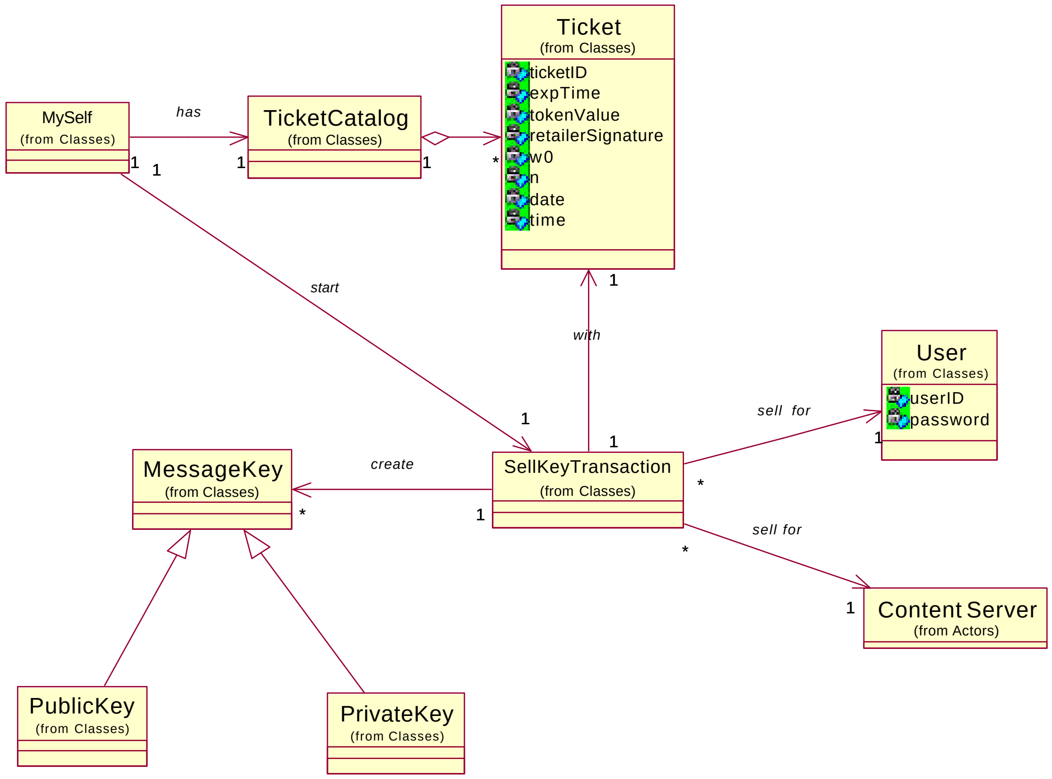
Concept representing key to decrypt or encrypt a message that is a part of an Online Service

BroadcastServiceTxn

Concept represent information regarding the action of encrypting and broadcasting a message of an Online Service

Conceptual Model : KeyServer View-Point

Conceptual Model : Get a Service
KeyServer View-Point > Get Online Service > Sell Keys



Glossary

PublicKey
Concept representing public key that is used to encrypt the message

PrivateKey
Concept representing public key that is used to encrypt the message

User
Concept representing one User of the System, i.e. a Member

MessageKey
Concept representing key to decrypt or encrypt a message that is a part of an Online Service

Content Server
A Content Server disseminates service to Customer by broadcasting encrypted message which is a part of a stream

Ticket
Concept representing a ticket that is used to get an online Service

TicketCatalog
Concept representing all current Ticket of KeyServer

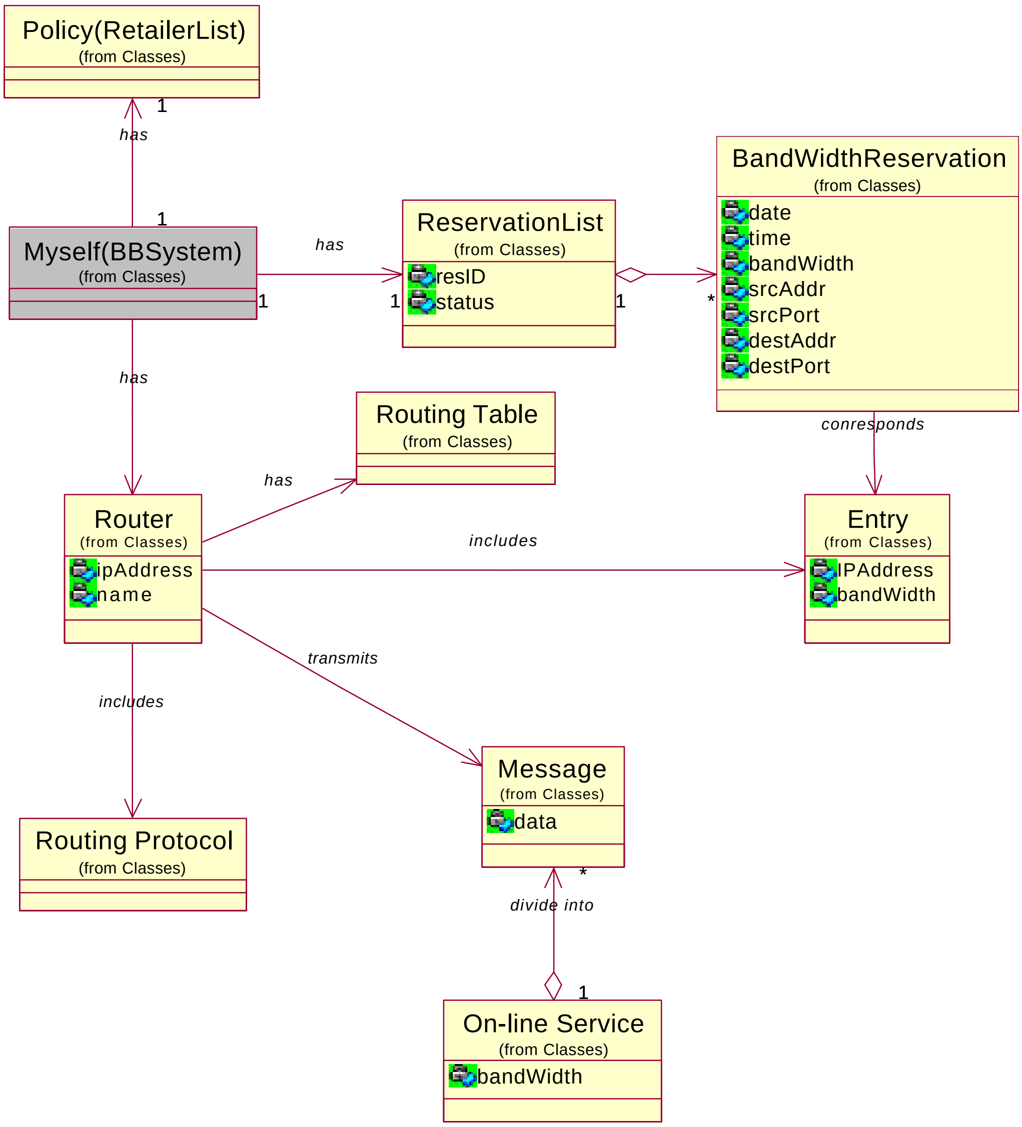
SellKeyTransaction

Concept representing information regarding the action of selling key that is used to encrypt or decrypt a message of an online service

MySelf

Conceptual Model : BBSystem View-Point

Conceptual Model Get a Service : BBSystem View-Point



Glossary

BandWidthReservation

Concept representing the bandwidth reserve for an on line service

ReservationList

Concept representing all BandWidth Reservation

Policy(RetailerList)

Concept representing all Retailer that has administrative permission to make reservation

On-line Service

Concept representing a Service in form of an Online Service

Routing Protocol

Concept representing rounting protocol using in a router

Entry

Myself(BBSystem)

Message

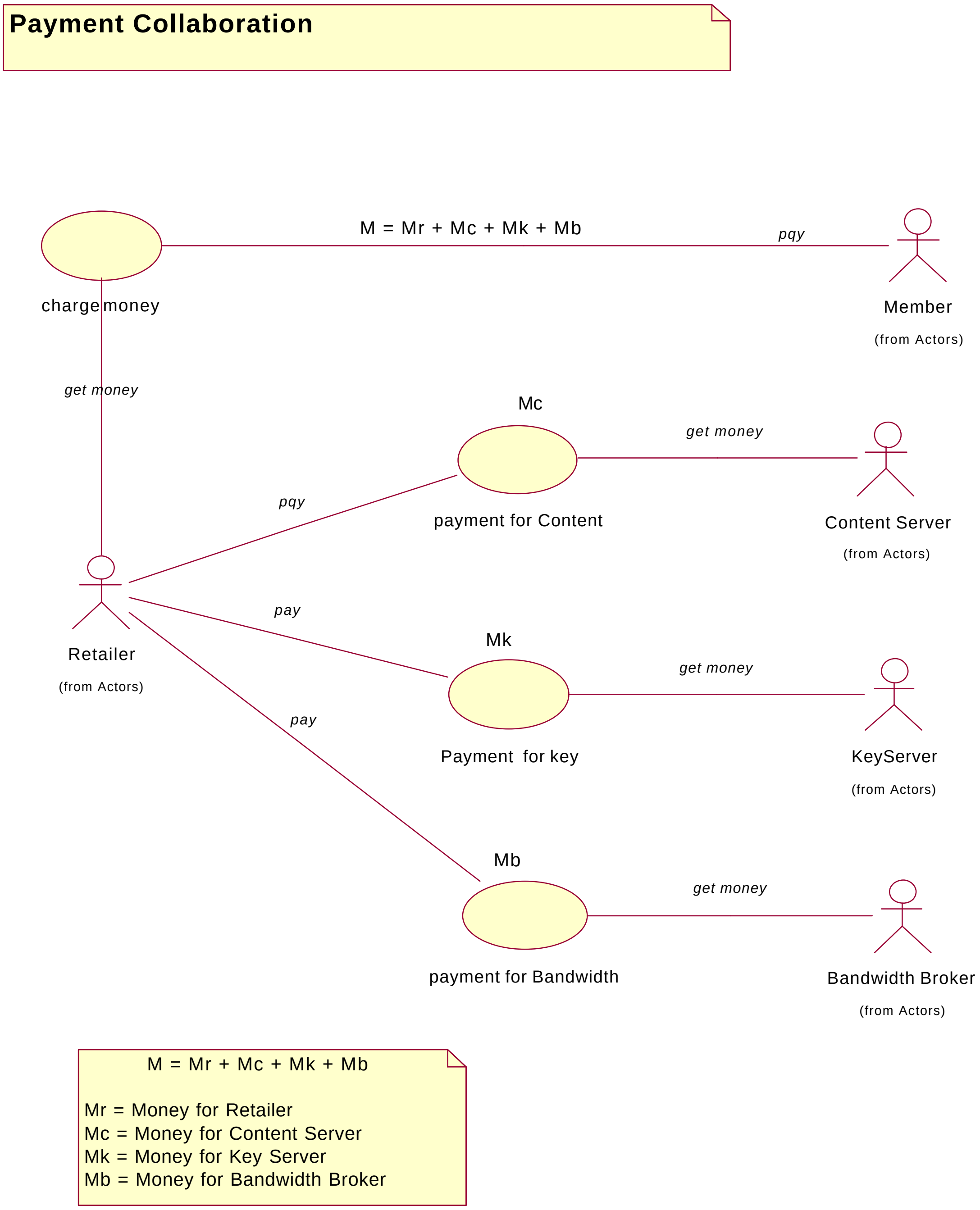
Concept representing a message that is a part of an Online Service

Routing Table

Router

3.1.2. Payment

Payment

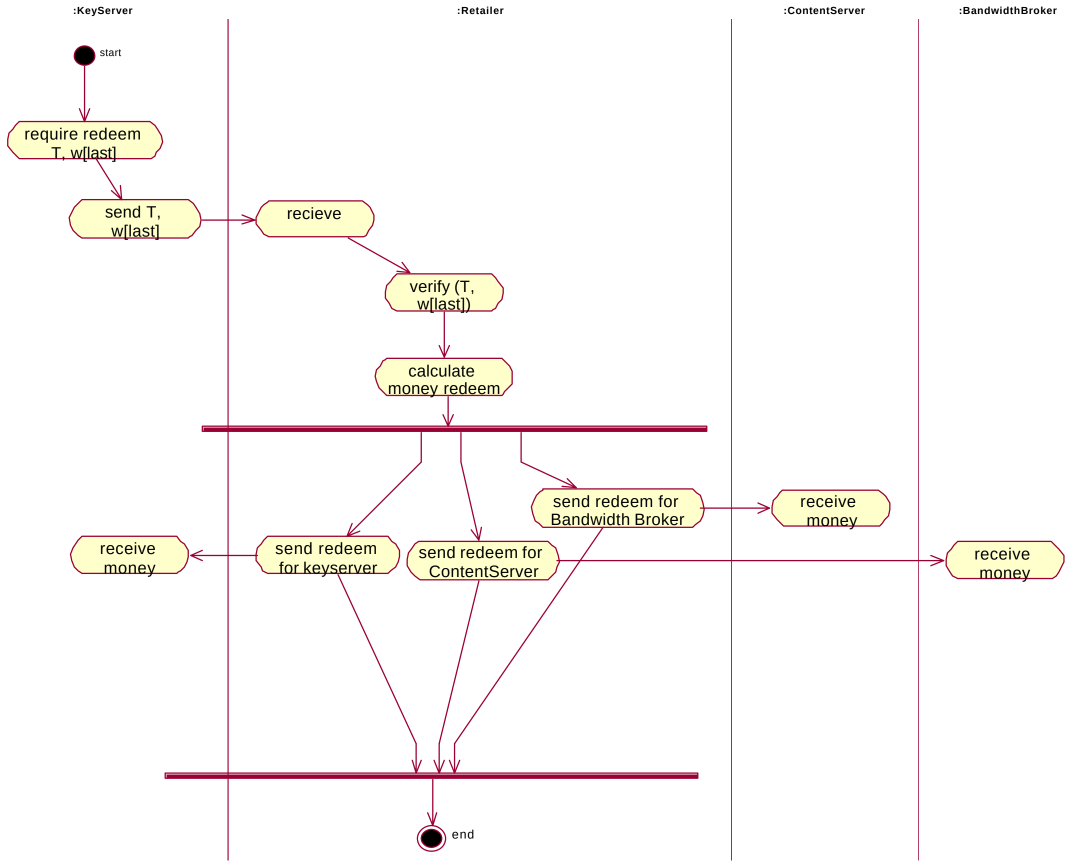


Payment Collaboration

M = Mr + Mc + Mk + Mb

Mr = Money for Retailer
Mc = Money for Content Server
Mk = Money for Key Server
Mb = Money for Bandwidth Broker

Payment

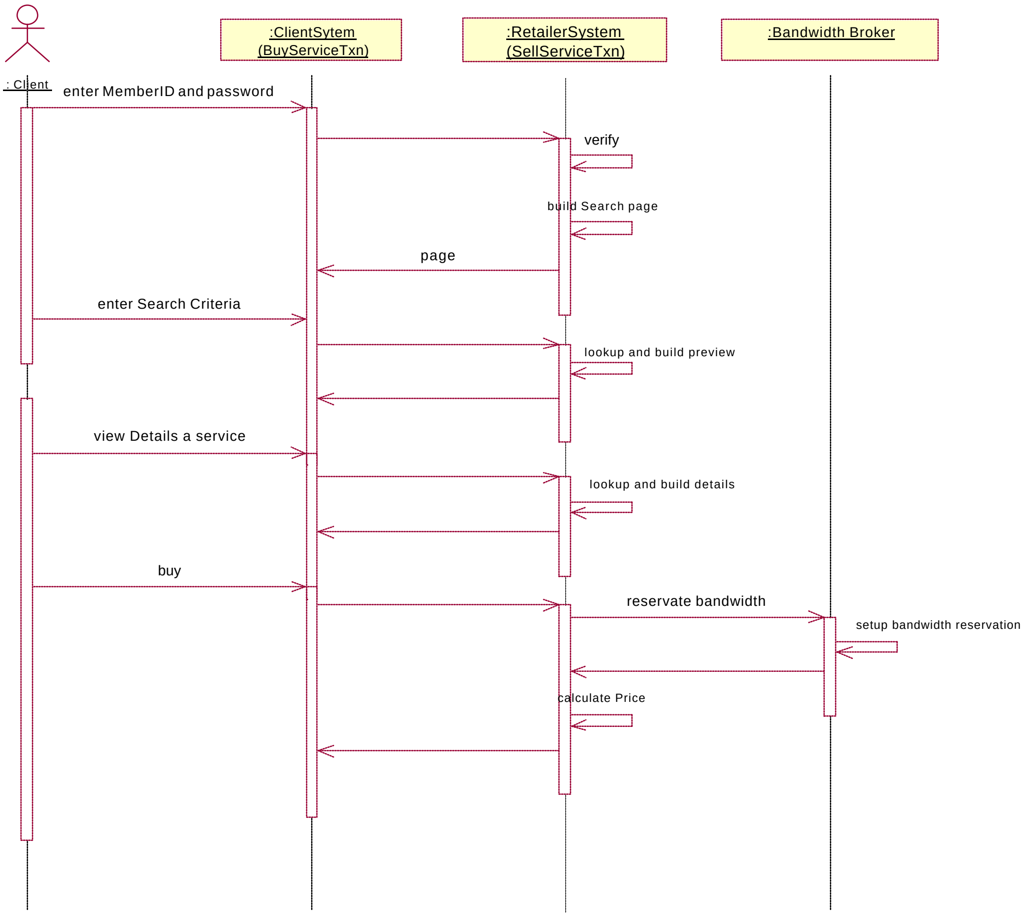

:KeyServer
:Retailer
:ContentServer
:BandwidthBroker
start
require redeem T, w[last]
send T, w[last]
recieve
verify (T, w[last])
calculate money redeem
send redeem for Bandwidth Broker
receive money
receive money
send redeem for keyserver
send redeem for ContentServer
receive money
end

4.IT System Implementation

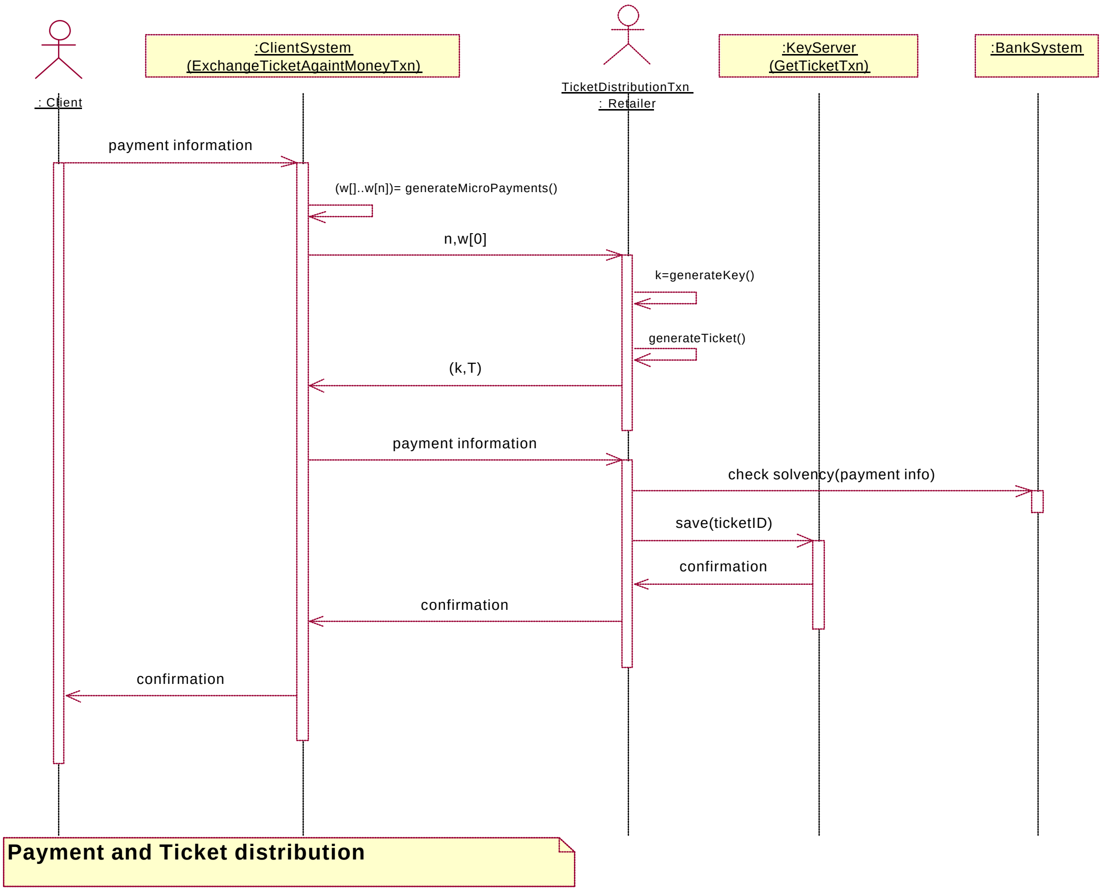
4.1. Sell and Get a Service

4.1.1. Sell a Service

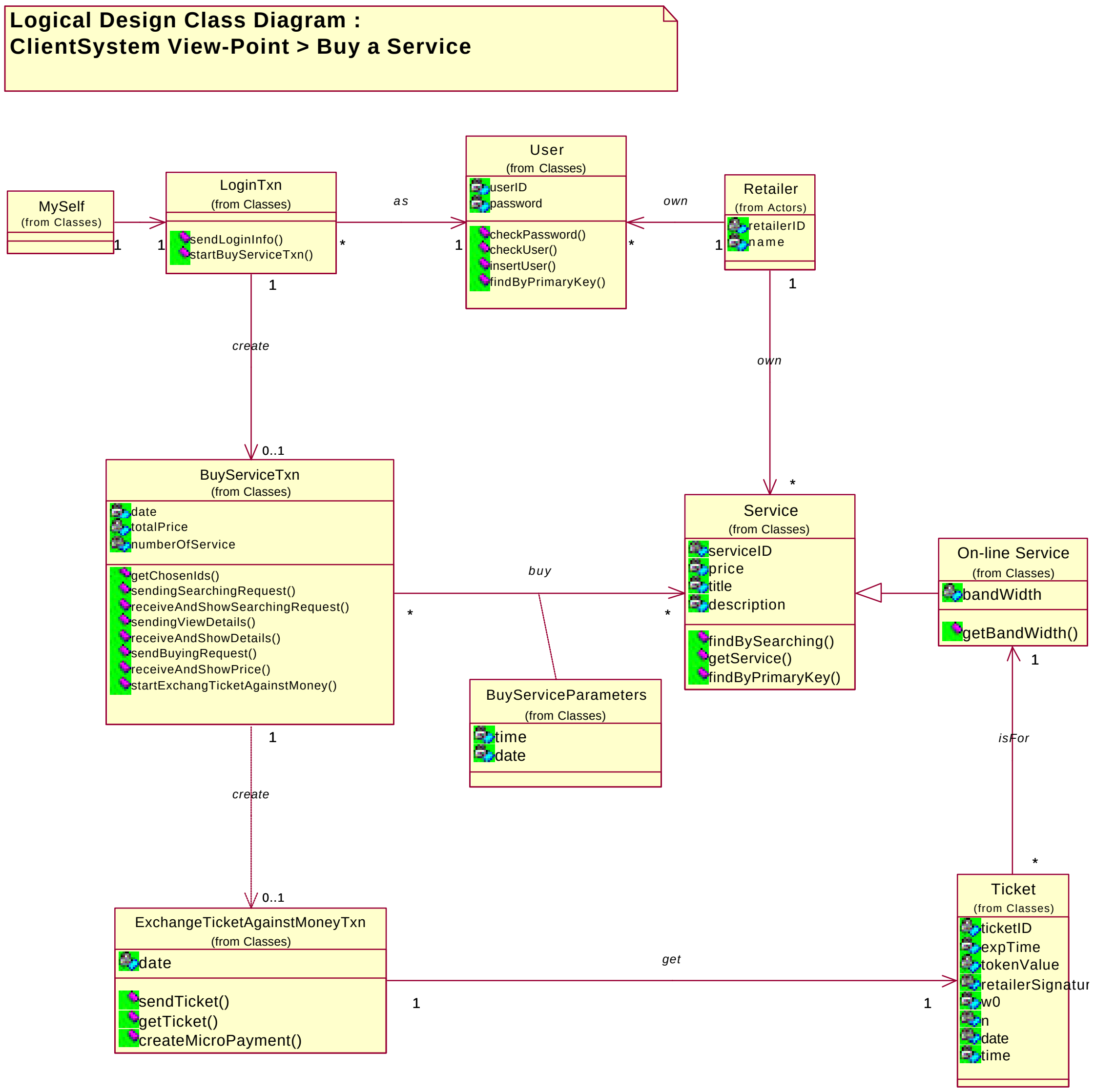
Sequence Diagram : Choose a Service



Sequence Diagram : Buy a Service



Logical Desgin Class Diagram : Client System View-Point



Glossary

BuyServiceParameters

Concept representing some information when buy a Service

On-line Service

Concept representing a Service in form of an Online Service

MySelf

User

Concept representing one User of the System, i.e. a Member

Retailer

A Retailer sells streams (provided by the Content Provider) to Customer

Ticket

Concept representing a ticket that is used to get an online Service

LoginTxn

Concept representing information regarding the action of a Customer login on the System

Service

Concept representing any kind of Service

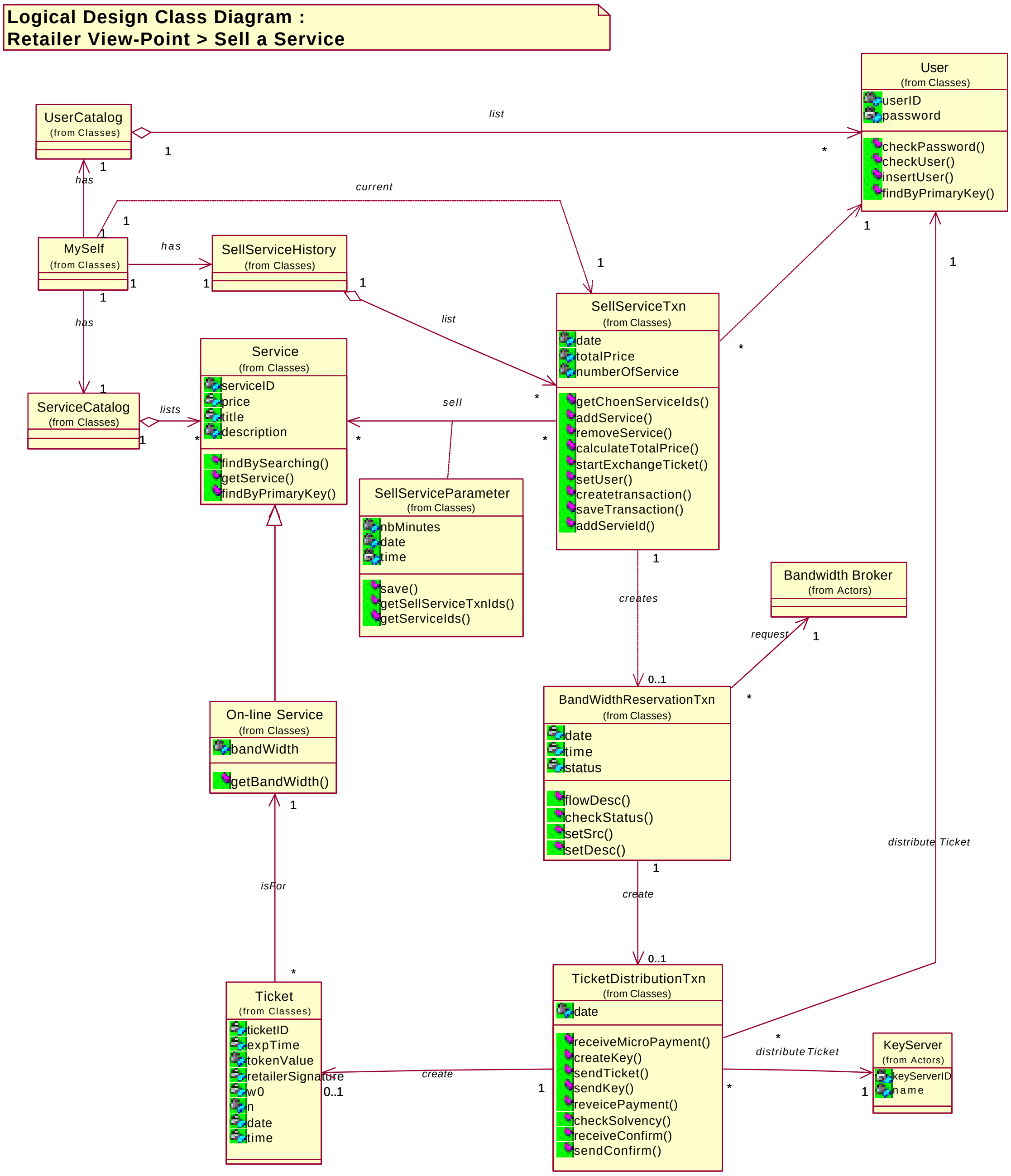
ExchangeTicketAgainstMoneyTxn

Concept representing information regarding the action of buying Ticket for an online service

BuyServiceTxn

Concept representing information regarding the action of buying Services

Logical Design Class Diagram : RetailerSystem View-Point



Glossary

SellServiceParameter

Concept representing the different way a Service can be bought, i.e. payment per views, payment per time and payment per copy

Ticket

Concept representing a ticket that is used to get an online Service

KeyServer

A Key Server works like a Digital Rigth Manager. It is responsible for the digital keys distribution used for encrypting and decrypting online streams

On-line Service

Concept representing a Service in form of an Online Service

Bandwidth Broker

A BandWidth Broker BB is responsible for the bandwidth reservation

ServiceCatalog

Concept representing all ServiceSpecs

UserCatalog

Concept representing all User concepts

TicketDistributionTxn

Concept representing information regarding the action of distributing the Ticket

SellServiceHistory

Concept representing all past Sell Service Transactions

Service

Concept representing any kind of Service

BandWidthReservationTxn

Concept representing information regarding the action of reserving the bandWidth

MySelf

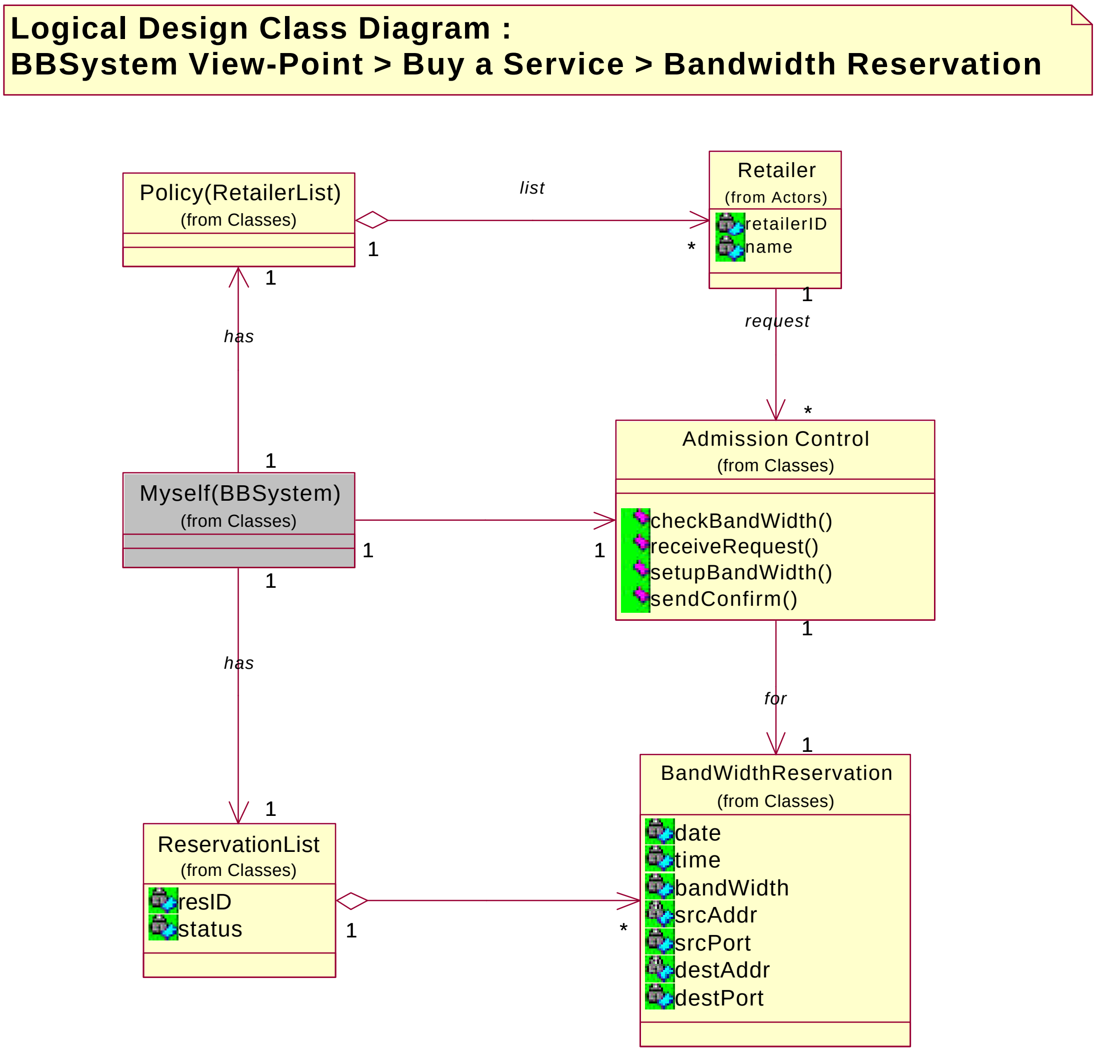
User

Concept representing one User of the System, i.e. a Member

SellServiceTxn

Concept representing information regarding the action of selling one or several Services

Logical Design Class Diagram : BBSystem View-Point



Glossary

Policy(RetailerList)

Concept representing all Retailer that has administrative permission to make reservation

ReservationList

Concept representing all BandWidth Reservation

Myself(BBSystem)

Retailer

A Retailer sells streams (provided by the Content Provider) to Customer

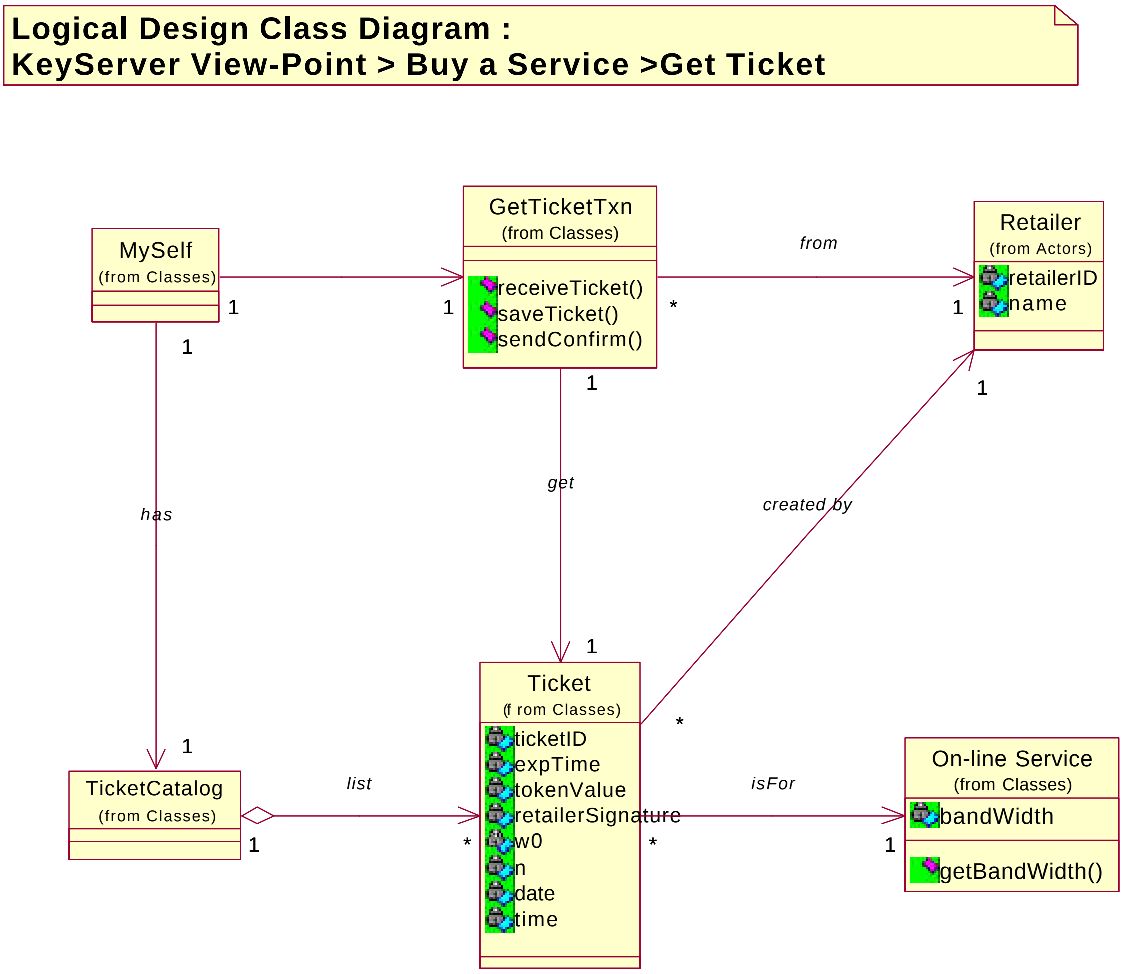
BandWidthReservation

Concept representing the bandwidth reserve for an on line service

Admission Control

Concept representing the action of setup Bandwidth Reservation

Logical Desgin Class Diagram : KeyServer View-Point



Glossary

Retailer

A Retailer sells streams (provided by the Content Provider) to Customer

On-line Service

Concept representing a Service in form of an Online Service

GetTicketTxn

Concept representing information regarding the action of getting Ticket that is stand for money

MySelf

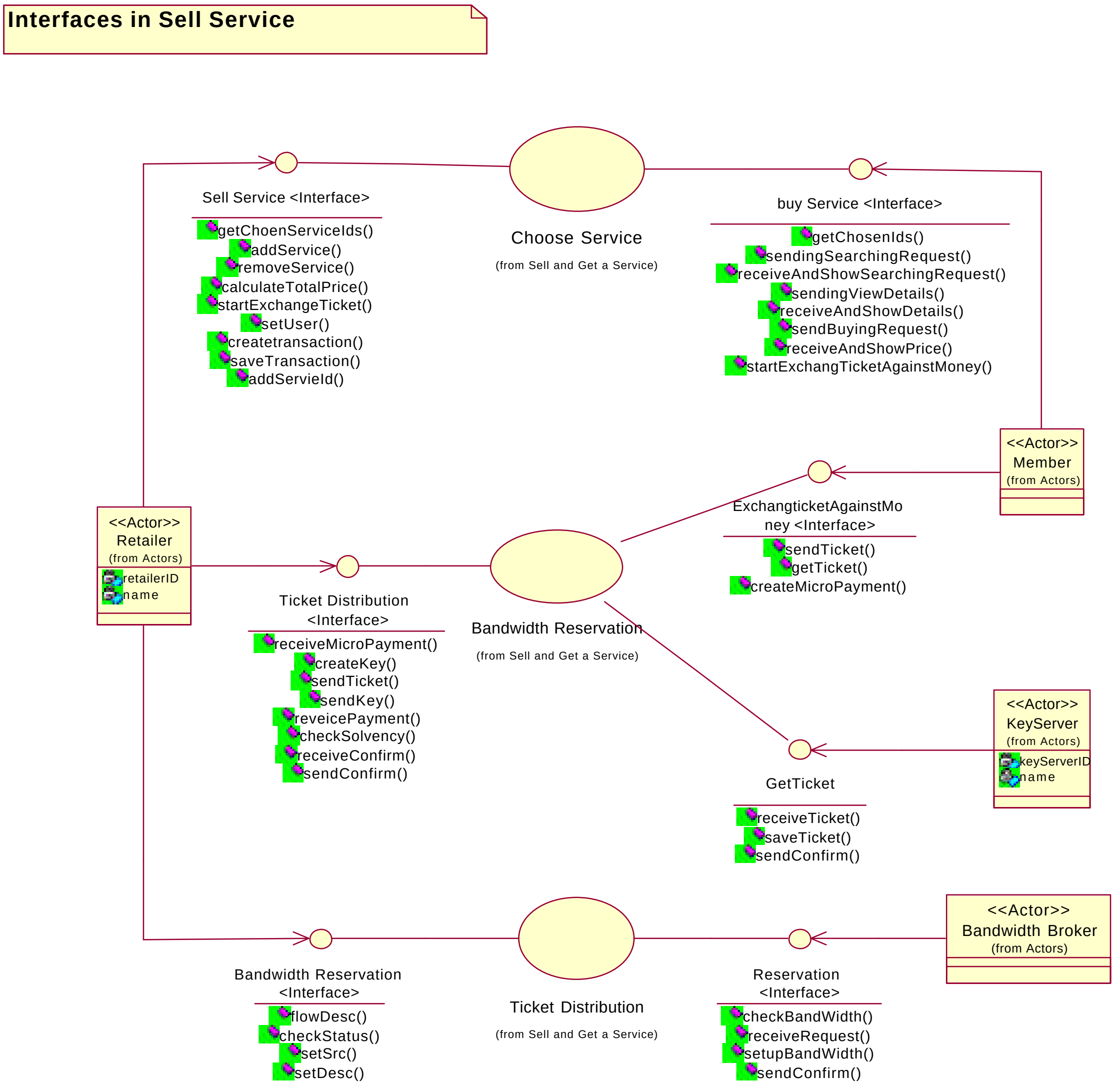
Ticket

Concept representing a ticket that is used to get an online Service

TicketCatalog

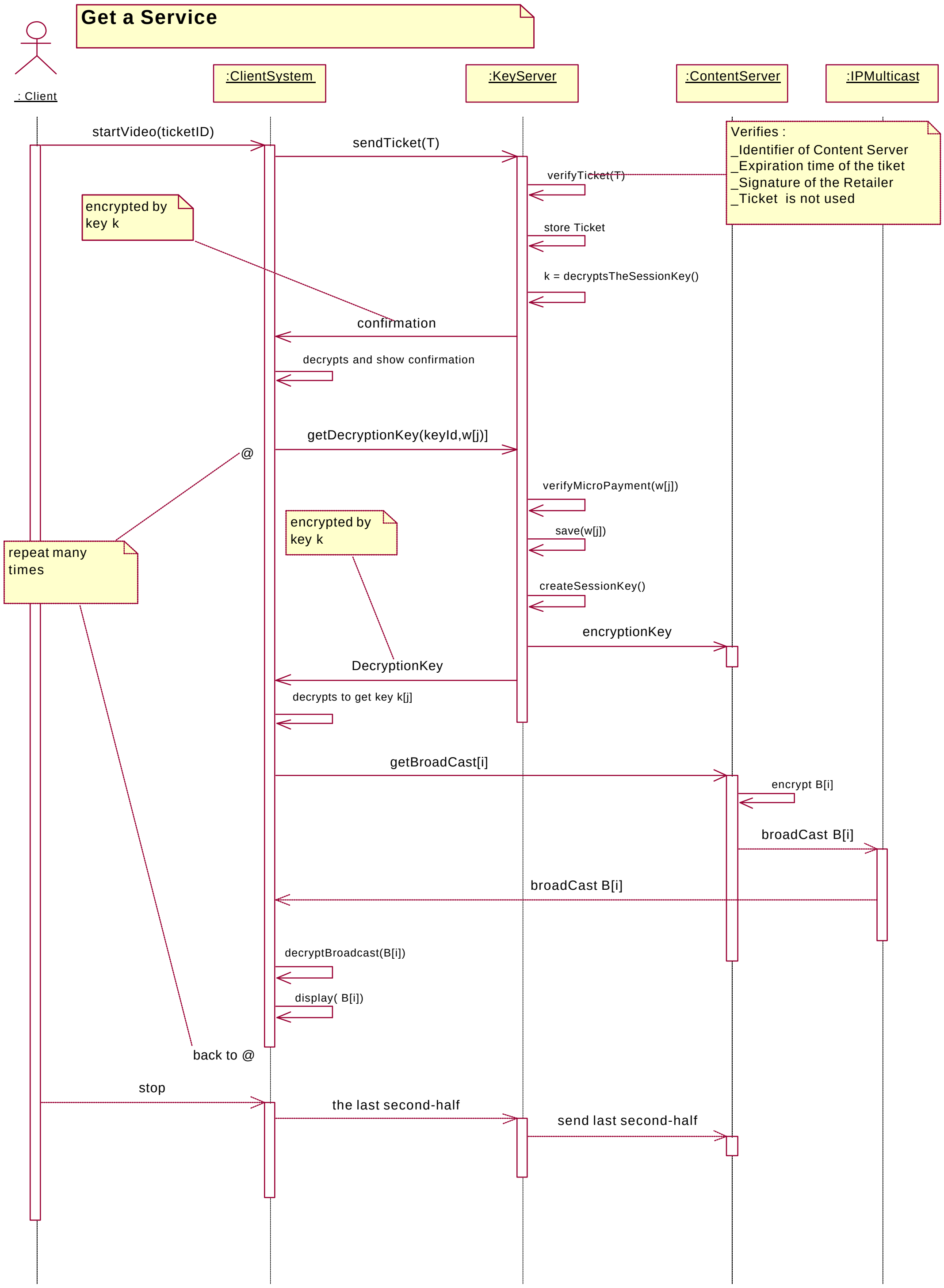
Concept representing all current Ticket of KeyServer

Interfaces in Get a Service

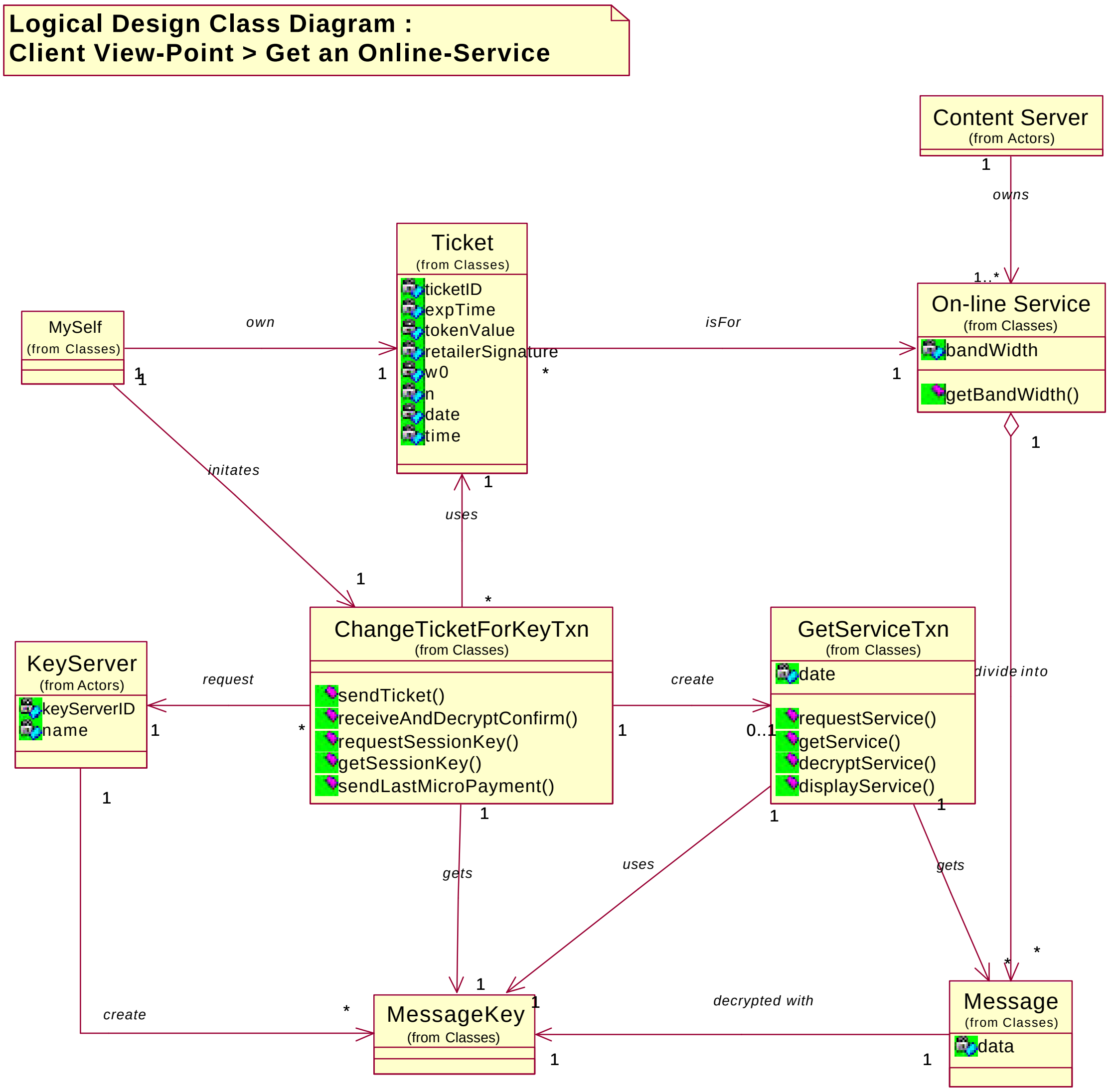


4.1.2. Get a Service

Sequence Diagram : Get a Service



Logical Design Class Diagram : ClientSystem View-Point



Glossary

Content Server

A Content Server disseminates service to Customer by broadcasting encrypted message which is a part of a stream

Message

Concept representing a message that is a part of an Online Service

On-line Service

Concept representing a Service in form of an Online Service

KeyServer

A Key Server works like a Digital Rigth Manager. It is responsible for the digital keys distribution used for encrypting and decrypting online streams

GetServiceTxn

Concept representing information regarding the action of getting a message that is a part of an Online Servie

MessageKey

Concept representing key to decrypt or encrypt a message that is a part of an Online Service

Ticket

Concept representing a ticket that is used to get an online Service

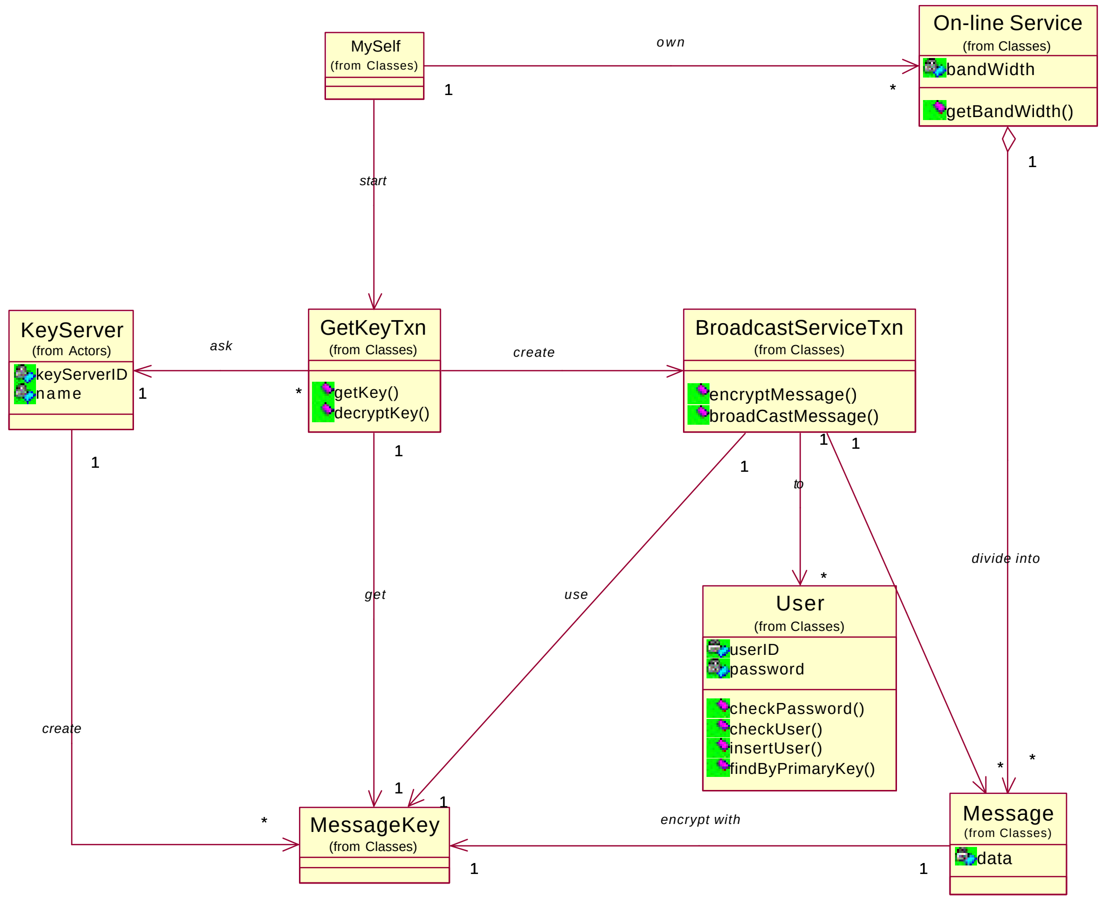
ChangeTicketForKeyTxn

Concept representing information regarding the action of change Ticket for Key that is used to decrypt the online Service

MySelf

Logical Design Class Diagram : ContentServer View-Point

Logical Design Class Diagram : Get a Service
ContentServer View-Point > BroadCast Online Service



Glossary

MySelf

On-line Service

Concept representing a Service in form of an Online Service

KeyServer

A Key Server works like a Digital Rigth Manager. It is responsible for the digital keys distribution used for encrypting and decrypting online streams

User

Concept representing one User of the System, i.e. a Member

GetKeyTxn

Concept representing information regarding the action of getting key that is used to encrypt message before broadcasting

Message

Concept representing a message that is a part of an Online Service

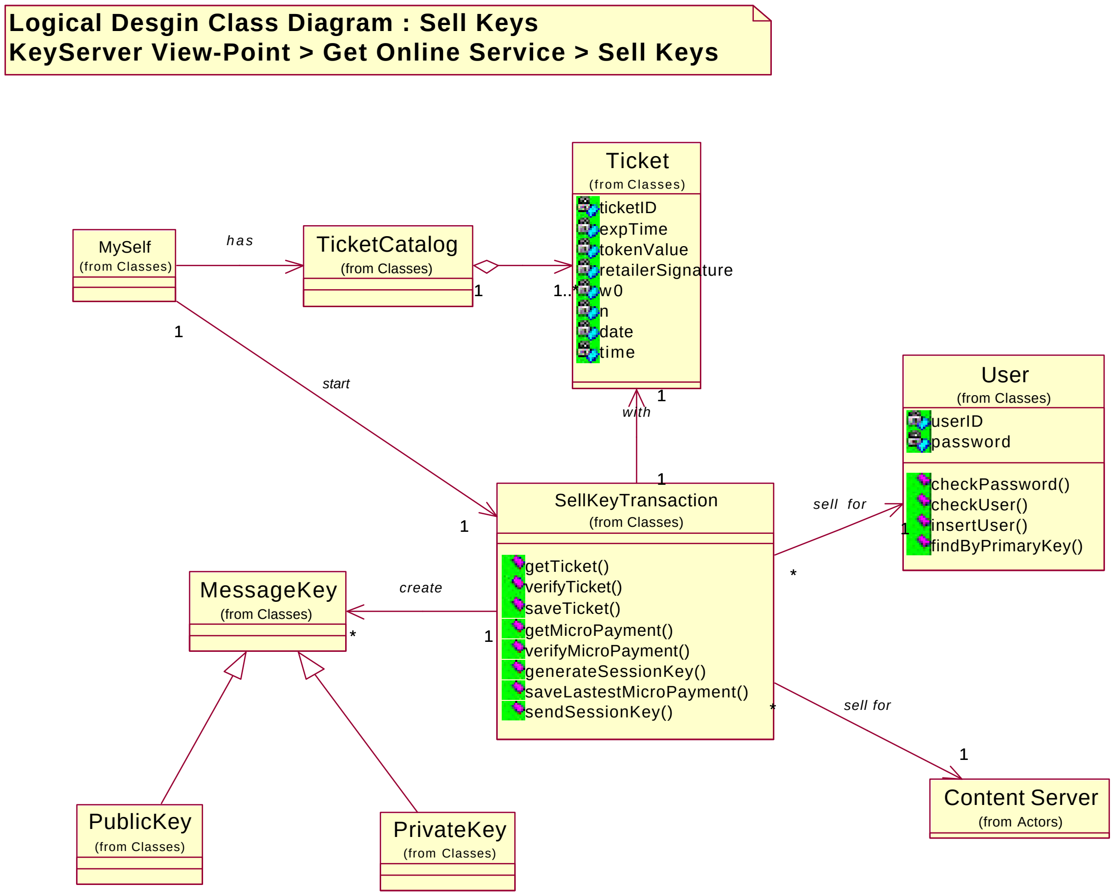
MessageKey

Concept representing key to decrypt or encrypt a message that is a part of an Online Service

BroadcastServiceTxn

Concept represent information regarding the action of encrypting and broadcasting a message of an Online Service

Logical Design Class Diagram : KeyServer View-Point



Glossary

PublicKey

Concept representing public key that is used to encrypt the message

PrivateKey

Concept representing public key that is used to encrypt the message

User

Concept representing one User of the System, i.e. a Member

MessageKey

Concept representing key to decrypt or encrypt a message that is a part of an Online Service

Content Server

A Content Server disseminates service to Customer by broadcasting encrypted message which is a part of a stream

Ticket

Concept representing a ticket that is used to get an online Service

TicketCatalog

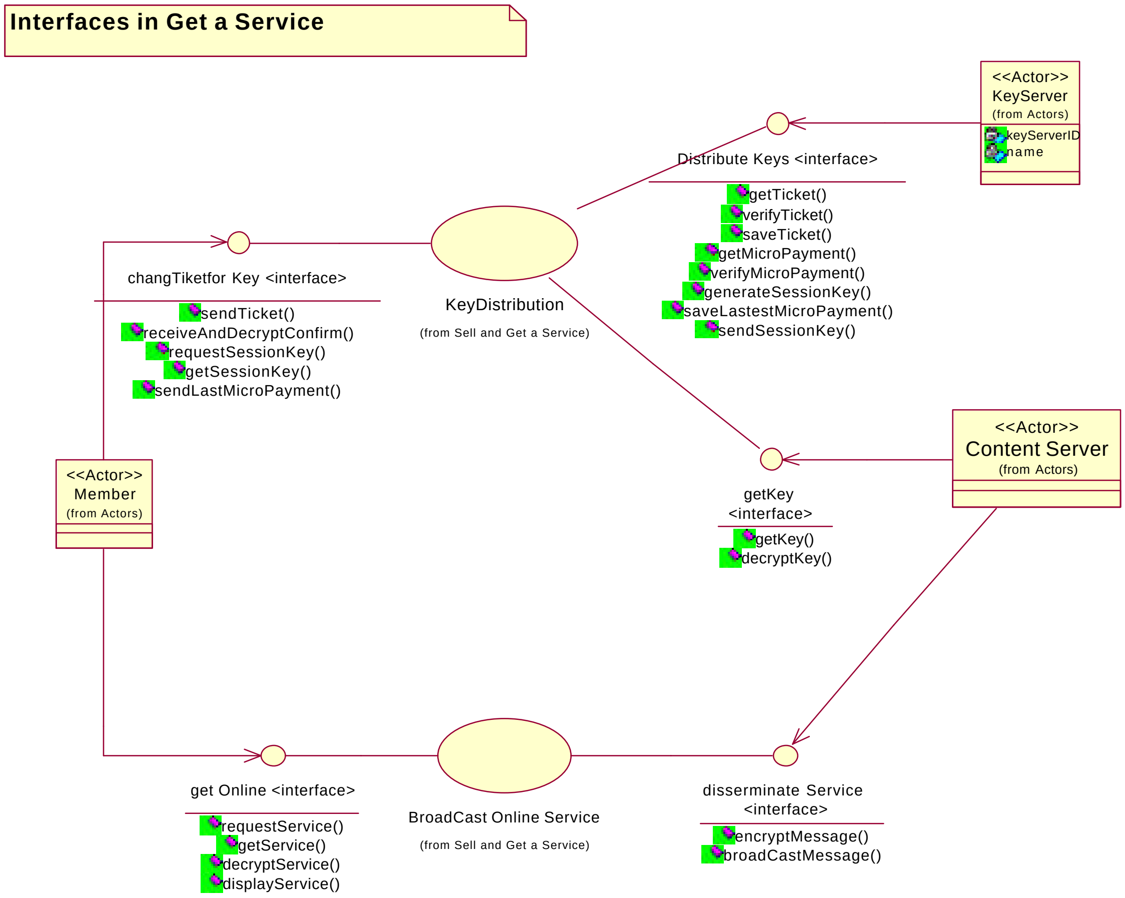
Concept representing all current Ticket of KeyServer

SellKeyTransaction

Concept representing information regarding the action of selling key that is used to encrypt or decrypt a message of an online service

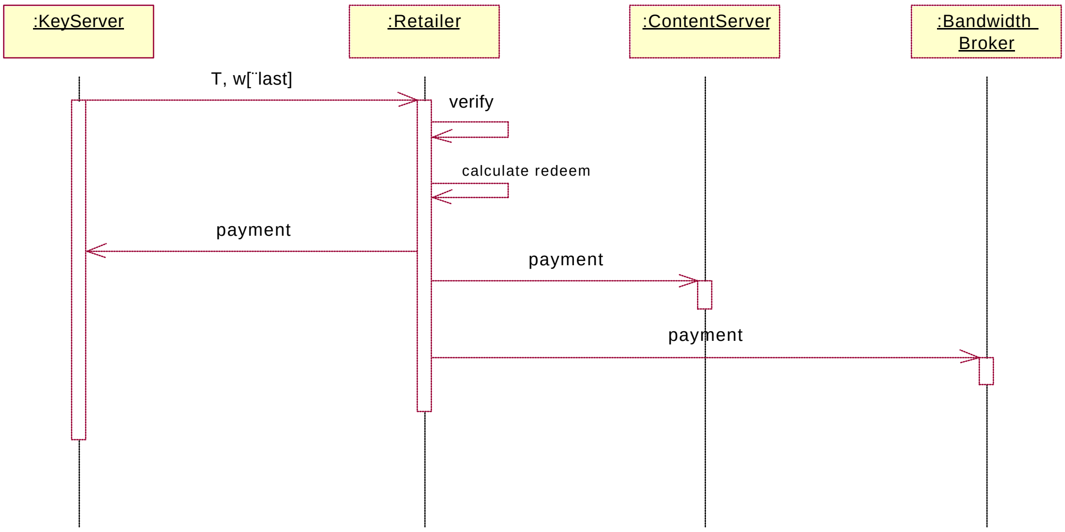
MySelf

Interfaces in Get a Service



4.1.3. Redeem

Redeem



Sequence Diagram : Redeem process