Content-based Charging Support for Multiple Interworking Provider

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Content-based Charging Support for Multiple Interworking Providers

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Introduction

• Increasing number of commercial service in Internet
  – E.g. multi media applications and content based services

• Expanding number of different end terminals with internet capability
  – E.g. smart phone, PCs and so on...
Motivation

• Emerging commercial content services
• Users are constrained to register each CP
• Users get billed from several providers
• Missing trust on the user’s and CP’s side
• Costly charging infrastructure for smaller and newly established CPs
Motivation

• Provide a user-friendly and secure environment for customers allowing to use services of different CPs
• An integrated invoice covering all service details

• What would be a most efficient way for users?
Interworking Scenario

• Participating entities
  – ISPs providing access and packet transport service
  – CPs offering electronic content
  – Users being customer of an ISP and accessing CPs

• Business scenario
  – ISPs and CPs cooperate with each other and have a contract in place
  – CPs outsource the charging and billing process to the ISPs
  – CPs get their charges from the ISPs
  – Users get a single bill from their home ISPs with all service details
Content-based Charging Process

1. contact the CP and choose content item to purchase
2. sends verification page to user
3. sends transaction information
4. authorizes the transaction
5. gets the rights to access the content
6. User downloads content item
Content-based Charging Process

• Charging process performed via the user’s ISP
• ISP acts as a trusted third party for the user and the CP in the charging process
  – Possibility for the user to check the charges of the content in advance
  – CP is assured that he gets his charges
  – User can access several CPs without having to register with each of them
  – The CPs get more possible customer

• Anonymity for the user
  – The CP gets to know only the ISP of the user
Implementation Architecture

• Infrastructure on ISP side
  – RADIUS based AAA infrastructure with accounting database
  – LDAP based customer care system with
    • Subscriber information
    • Tariff information
  – Charging gateway with standard interfaces

• Infrastructure on CP side
  – Content server based on internet (web) technology
  – Charging server with
    • Content information, meta-data
    • Accessed and charged items, financial claims per ISPs

• No user side extensions, standard browser
Conclusion

- Single bill for transport and content services
- Easy-to-use interface to the user to access several Content Providers
- Secure relation between user and CP without a business relation in advance
- User can control the charging process
- Use of standard Internet protocols
- Flexible system providing basic scalability
- Compatible with any end-system a user may utilize
Discussion

• Advantages:
  – On ISP side, easy to achieve content-based charging to CPs
  – All content purchase record that can be useful for the charging
  – manage user’s private information like their preferences and so on.

  – On CP side, very small and start-up company, it would be better
to delegate charging task to ISP.
  – However, big and dominating CPs should not want to give
charging role to ISP.

• So I think, although there are some advantages for users,
and ISP and also some CPs, there could be limitation.

• As I mentioned, it should be very hard to let big CPs join
this model.
Q&A

THANK YOU 😊
• **AAA (Authentication Authorization Accounting)**

  Provide the essential functionality for network operators to authenticate users, authorize their service access and account for their service usage.

• **RADIUS**

  Remote Authentication Dial In User Service (RADIUS) is a networking protocol that provides centralized Authentication, Authorization, and Accounting (AAA) management for computers to connect and use a network service.
• LDAP

The Lightweight Directory Access Protocol (LDAP) is an application protocol for accessing and maintaining distributed directory information services over an Internet Protocol (IP) network.