Service composition scenarios

Day in the life of a student:

1.   Bus to school: check bus schedule from bus-stop:
        1.1.   Web service with bus schedule and fare
        1.2.   Traffic conditions on bus route
        1.3.   GPS service to get user's location
        1.4.   SMS gateway to send message to user's cell-phone
2.   Pay bus-fare electronically using cell-phone:
        2.1.   Authentication service to check for student discount
        2.2.   Online banking service for payment
3.   Steaming music on cell-phone/PDA
        3.1.   Streaming media server
        3.2.   Gateway service to go from cell-phone network to the Internet
        3.3.   Online personal preference service to find new favorite music
        3.4.   One or more trans-coding services for data transformation
        3.5.   Online CD store to extract price of CD with that song
        3.6.   Proxy service to display CD price and purchase information on PDA while
                music is playing
4.   Important email pushed to cell-phone
        4.1.   Email service like yahoo
        4.2.   Personal preference registry to give list of important email senders (student's
                prof)
        4.3.   Text-to-speech service to convert email to speech
        4.4.   Additional codecs if any
        4.5.   Gateway service to access cell-phone network
        4.6.   (Prof's email says that class has been moved to an alternate location)
5.   Notes in class
        5.1.   Student downloads lecture notes from local web-server (web-mirror service)
                onto laptop
        5.2.   Starts-up media-board application and opens the lecture notes (media-board
                proxy) -- shares notes with study-group
        5.3.   Local storage service stores marked-up notes periodically
6.   Streaming video on handheld
        6.1.   On the way back from school, student views missed lecture
        6.2.   School's streaming video server
        6.3.   Preference service to extract student's handheld's capabilities
        6.4.   Transcoding service to adapt content
        6.5.   Redirection service
                6.5.1. When student gets off the bus, and walks to home, the video session is
                        switched to the PC at home
                6.5.2. The redirection service handles this
7.   Online gaming on home PC
        7.1.   Video from game server

  7.2. Compose with email service or news service that inserts text into the bottom of the game screen

Types of services:

  Location service (GPS)
  Storage services
    Registry/preference
    File
    Database
  Caching service
  Security/authentication service, Billing service
  Redirection service
  Transformation agents
    Trans-coding
    Rate-adaptation
    Adding content (text to the bottom of video, or ads)
    Text-to-speech
  Gateway services
  Sources
    Web server
    Streaming media server
    Game server

Access patterns

  Session-oriented (long-lived session) versus short-access
  Transaction-oriented versus no-transaction access
  Read-only (request-reply) kind of access