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**TSG-SA WG1 #28**  
**Beijing, China, 4th to 8th April 2005**

**S1-050521**  
**Agenda Item: 6.1**

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**Title:** LS on Long Term Evolution for the UTRA and UTRAN  
**Work Item:** FS on Evolved UTRA and UTRAN  
**Release:** LTE

**Source:** SA1  
**To:** TSG RAN, RAN1, RAN2, RAN3, RAN4, RAN5  
**Cc:** TSG SA

**Contact Person:**  
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**Attachments:** S1-050445 AIPN Stage 1 TS 22.258 v0.3.0

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### **1. Overall Description:**

At TSG SA#27 SA1 was tasked to investigate the throughput requirements for Long Term Evolution for the UTRA and UTRAN and provide guidance to TSG RAN. This LS provides the result of investigation of this issue at SA1#28 as guidance for the work on Long Term Evolution for the UTRA and UTRAN within TSG RAN.

SA1 is aware of the working assumption below agreed in the last RAN Long-Term Evolution meeting and captured in RP-050155.

*“For this baseline configuration, the system should support a peak data rate of 5b/s/Hz on the downlink and 2.5b/s/Hz on the uplink. This translates into a peak data rate of 100Mb/s on the downlink and 50Mb/s on the uplink within a 20MHz bandwidth.”*

At present SA1 has no specific comments to the figures within the above working assumption. However, SA1 would like to comment that SA1 expects the work on Evolved UTRA and UTRAN to provide a competitive throughput compared to other radio transmission technologies. Additionally, SA1 expects that TSG RAN will study feasible data rates for Evolved UTRA and UTRAN.

SA1 intends to capture service requirements applicable to Evolved UTRA and UTRAN in SA1 specifications in the future as appropriate. More specifically, SA1 intend to capture service requirements applicable to 3GPP system architecture evolution and Evolved UTRA and UTRAN within the All-IP Network (AIPN) stage 1 (TS 22.258). SA1 has added a dedicated chapter to this draft technical specification to capture the service requirements applicable to Evolved UTRA and UTRAN. The latest version of the AIPN Stage 1 (TS 22.258) is attached to this LS for the information of TSG RAN and the RAN Working Groups.

SA1 foresees that user-to-user and user-to-multicast packet based streaming and real-time services, including packet based voice services, over an IP bearer will be important service scenarios to be realised by future evolution of the 3GPP system. These types of services are more symmetric than the current packet based services (which are mainly user-to-server services) and means that there may be a need to increase the uplink throughput for Evolved UTRA and UTRAN above that of the current RAN working assumption. SA1 will investigate this issue further and provide guidance to TSG RAN as appropriate. It is expected that it will be possible to provide some information as a result of the next SA1 meeting (SA1#29, 11-15<sup>th</sup> July 2005). In the meantime, SA1 requests that TSG RAN progresses work on Evolved UTRA and UTRAN based on the currently agreed working assumptions (i.e. those within RP-050155).

Further details on service scenarios and use cases for future evolution of the 3GPP system can be found within the AIPN Feasibility Study in TR 22.978 (approved at SA#27).

## **2. Actions:**

**To TSG RAN and RAN Working Groups.**

**ACTION:** SA1 requests that TSG RAN and the RAN Working Groups take the above into consideration within their work on Long Term Evolution for the UTRA and UTRAN.

## **3. Date of Next TSG-SA1 Meetings:**

SA1#29	11 – 15 July 2005	Povoa de Varzim	EF3
SA1#30	24 – 28 October 2005	Vancouver	North American friends of 3GPP

# 3GPP TS 22.258 V0.23.0 (2004-04)

*Technical Specification*

## **3rd Generation Partnership Project; Technical Specification Group Service and System Aspects; Service Requirements for an All-IP Network (AIPN); Stage 1 (Release 7)**



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Keywords

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< Network, IP >

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## Foreword

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Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

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## Introduction

~~<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>~~

~~...The All-IP Network (AIPN) was the subject of a feasibility study within [2]. The present document contains the stage 1 requirements for the AIPN based upon the conclusions of this feasibility study.~~

~~The AIPN is an evolution of the 3GPP system to meet the increasing demands of the mobile telecommunications market. Primarily focused upon enhancements of packet switched technology, AIPN provides a continued evolution and optimisation of the system concept in order to provide a competitive edge in terms of both performance and cost. Moreover, it is important that developments of the 3GPP system are compliant with Internet protocols.~~

~~The AIPN is not limited to consideration of only the transport protocol used within the 3GPP system but adheres to the general concept of a network based upon IP and associated technologies, able to accommodate a variety of different access systems. Although, it is possible to use a variety of different access systems to connect to the AIPN, the AIPN provides an advanced, integrated service set independent as far as possible from the access system used.~~

~~The high level objectives of introduction of the AIPN are to realise: *universal seamless access, improved user experience, reduction of cost* (for AIPN operators), and *flexibility of deployment*. There are also a number of motivations and drivers for the introduction of an AIPN which include but are not limited to: diversification of mobile services, need to satisfy user experience of early adopters, anticipation of PS traffic to surpass CS, desire to encompass a variety of access systems, need for increased system efficiency and cost reduction (OPEX and CAPEX), and advances of next generation radio access systems and broadband wireless IP-based networks.~~

~~The AIPN builds upon key success factors of the 3GPP system as a mobile network system (e.g. provision of network operator control within the network and the ability to utilise the wireless interface as efficiently as possible) whilst providing improvements in basic system performance and enhancing the capabilities for network operators to provide services to subscribers and users.~~

~~For further details [on the high level objectives, motivations and drivers, and impacts upon the models of the 3GPP system of the AIPN](#), see [2].~~

---

# 1 Scope

The present document describes the service requirements for the All-IP Network (AIPN) including service requirements applicable to Evolved UTRA and UTRAN. Where appropriate, references are made to service requirements within other 3GPP specifications that are applicable to an AIPN.

---

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TR 22.978 " All-IP Network (AIPN) Feasibility Study".

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# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions apply.

**All-IP Network (AIPN):** A collection of entities that provide a set of capabilities for the provision of IP services to users based on IP technology where various access systems can be connected. The AIPN provides a set of common capabilities (including mobility, security, service provisioning, charging and QoS) which enable the provision of services to users and connectivity to other external networks. An AIPN requires one or more connected access systems to allow users to access the AIPN.

**Access system:** An entity or collection of entities that provides the user the capability to connect to the AIPN.

**AIPN operator:** An operator of an AIPN. It is assumed that the AIPN operator will also be a network/PLMN operator as defined within [1].

**IP service:** A service using an IP bearer provided by an IP service provider. For IP services data traffic is routed according to the IP addresses of the sender and receiver.

**IP service provider:** A service provider that provides IP services. This may or may not be a network operator e.g. the operator of an IMS would be an IP service provider according to this definition.

**IP service subscriber:** A subscriber to an IP service provider that uses IP services.

**Seamless:** A user experience that is unaffected by changes in the mechanisms used to provide services to a user.

Note: The determination of whether something satisfies the requirement for being seamless or not is dependent on the user's (e.g., human end-user, protocol, application, etc.) perception of the service being received and not necessarily the technology used to provide the service.

**Seamless Service:** Services provided across access systems and terminal capabilities. Provisioning of this service is continued between and within access systems and between terminals with minimal degradation in the service as seen by the user.



**Seamless session:** A session that is maintained during a change in access system, with no perceivable interruption from a user perspective, while adapting to the capabilities of each access system.

**End-user mobility:** The ability for the subscriber to communicate using the device or devices of his/her choice

**Terminal mobility:** The ability for the same UE to communicate whilst changing its point of attachment to the network. This includes both handovers within the same access system, and handover from one access system to another.

**Session mobility:** The ability for a communication session to be moved from one device to another under the control of the user.

**Ad-hoc Network:** A dynamically organized network of mobile terminals that are able to communicate with each other via some means (e.g. using IEEE 802.15 or WLAN in ad-hoc mode). An Ad-hoc Network may contain terminals that are capable of connection to a variety of access systems. In the context of AIPN, it is assumed that every terminal in the Ad-hoc Network is under the control of a separate user, each able to independently access the AIPN. The Ad-hoc Network routes their consolidated traffic towards the AIPN, to an Access system through one or more terminals in the Ad-hoc Network. The Ad-hoc Network may change the terminal carrying the consolidated traffic dynamically according to rules set up by the users. The Ad-hoc Network may move throughout the geographic coverage area.

**Moving Network:** A group of user devices (terminals) that move together, e.g. as part of a vehicular network. The user devices (terminals) are interconnected in a way that their consolidated traffic towards the AIPN is routed through a well-defined system (gateway). The elements of the consolidated traffic may originate from PAN and Ad-hoc Networks within a Moving Network.

For further definitions see [1].

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AAA	Authentication, Authorisation and Accounting
AIPN	All-IP Network
SSO	Single Sign-On

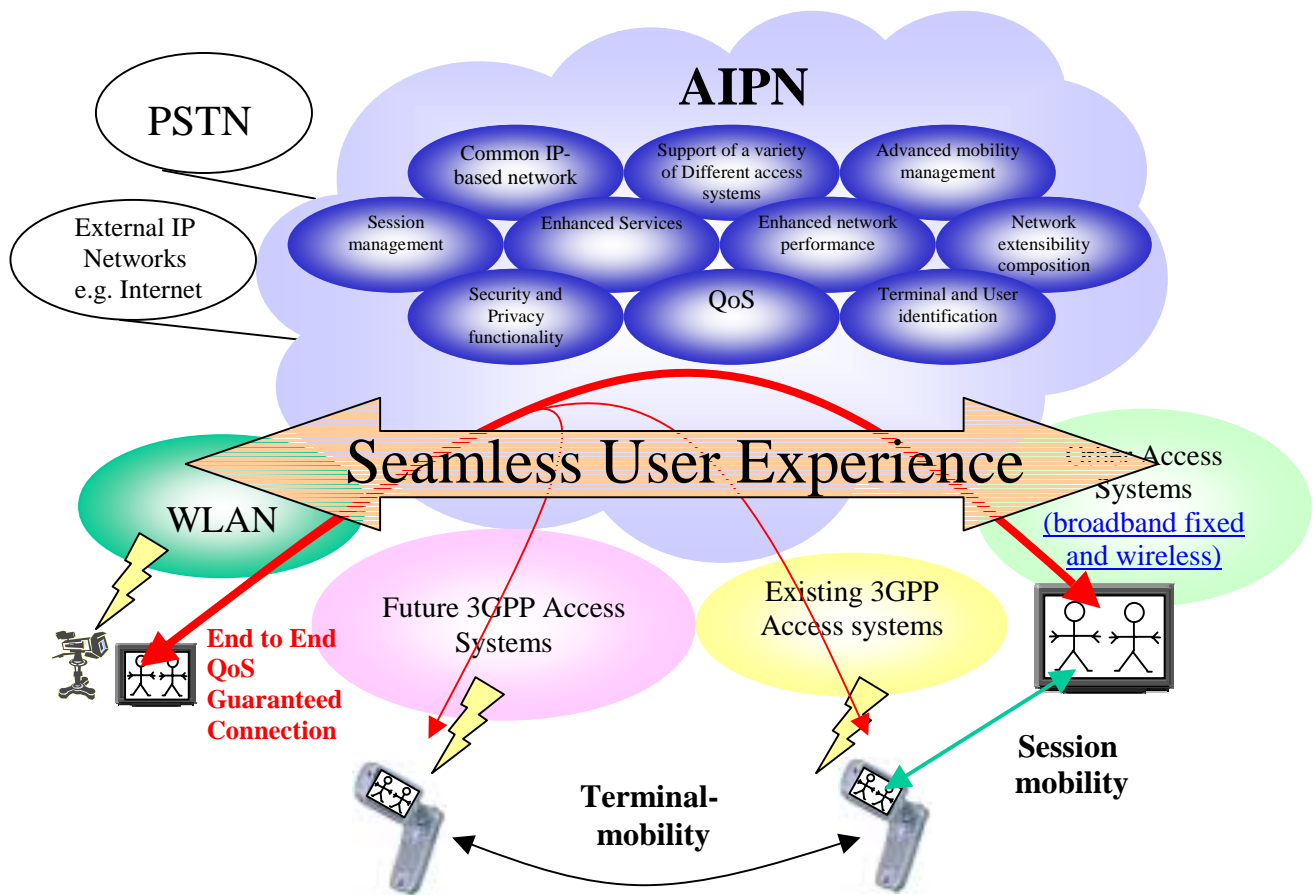
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## 4 General description

~~<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>~~

The AIPN is a common IP-based network that provides IP-based network control and IP transport. This includes the provision of IP-based mobility control of the high quality appropriate for cellular networks (i.e. no degradation in performance compared to other cellular mobility mechanisms) that is not dependent upon specific access or transport technologies, or IP version. It is the aim of the AIPN to provide a seamless user experience for all services within and across the various access systems. As well as across multiple diverse terminals a user may possess. Interworking with external IP networks (e.g. Internet) and legacy networks (e.g. PSTN) is provided and functionality at the edge of the network enables support of different access systems and legacy equipment.

A visual representation of the AIPN is provided in the figure below:



**Figure 1: Visual representation of the AIPN**

The key aspects of an AIPN can be summarised as follows:

- [Support for a variety of different access systems](#)
- [Common capabilities provided independent to the type of service provided with convergence to IP technology considered from the perspective of the system as a whole](#)
- [High performance mobility management that provides end-user, terminal and session mobility](#)
- [Ability to adapt and move sessions from one terminal to another](#)
- [Ability to select the appropriate access system based on a range of criteria](#)
- [Provision for advanced application services as well as seamless and ubiquitous services](#)
- [Ability to efficiently handle and optimally route a variety of different types of IP traffic including user-to-user and user-to-multicast traffic models](#)
- [High level of security and support for user privacy e.g. location privacy, identity privacy](#)
- [Methods for ensuring QoS within and across AIPNs](#)
- [Appropriate identification of terminals, subscriptions and users](#)
- [Federation of identities across different service providers](#)

[The key aspects of an AIPN are provided in addition to capabilities for efficient resource usage, charging and international roaming that are inherent within the 3GPP system.](#)

## 4.2 Development of an AIPN

The AIPN is a development of the 3GPP system, hence the AIPN should be developed focusing upon mobile network scenarios and the requirements of network operators (e.g. for the provision of network control within the AIPN under the control of the network operator and efficient usage of radio resources). Additionally, introduction of the AIPN should not result in degradation of the performance of the system. In general, introduction of the AIPN should result in increased performance and improvements in user experience.

Note: In some cases it may not be possible for the full capabilities of the AIPN to be utilised if other parts of the 3GPP system based on a release that does not fully support the relevant AIPN capabilities are used. For example, in the case a UTRAN or GERAN based access system is used that belongs to 3GPP release that does not fully support AIPN, some restrictions to the services and performance may be experienced by the user.

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## 5 High Level Requirements

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## 6 Basic AIPN Capabilities

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

### 6.2.1 Network performance

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 6.2.1.1 IP-based routing and addressing

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

### 6.2.4 Optimised IP session control

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

### 6.2.5 Support of IP traffic

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 6.2.5.1 Support of increased IP traffic demand

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 6.2.5.2 Ability to effectively handle a variety of different types of IP traffic

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 6.2.6 Quality of Service

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## 7 Multi-access and Seamless Mobility

### 7.1 Support of a variety of different access systems

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 7.1.1 Access system selection

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

### 7.2 Mobility management

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 7.2.1 Heterogeneous access systems mobility

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 7.2.2 Heterogeneous mobility mechanisms

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 7.2.3 Frequent mobility

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

## 8 Service requirements for Evolved UTRA and UTRAN

This chapter specifies the service requirements for the Evolved UTRA and UTRAN and related system architecture enhancements.

*< Requirements applicable to the evolution of UTRA and UTRAN (e.g. throughput requirements etc...) to be captured here >*

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## 9 Ad-hoc Network and Moving Network Support

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## 10 Security and Privacy

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## 11 Charging

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## Annex <A> (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
4/4/2005					Initial draft produced by AIPN Rapporteur and provided to the SA1 AIPN email exploder for comment.	-	0.0.0
6/5/2005					Updates based on discussions during SA1#28 and comments received to v0.0.0.	0.0.0	0.1.0
6/5/2005					Updates based on discussions during AIPN SWG during SA1#28.	0.1.0	0.2.0
<a href="#">6/5/2005</a>					<a href="#">Updates based on discussions during AIPN SWG during SA1#28.</a>	<a href="#">0.2.0</a>	<a href="#">0.3.0</a>

# 3GPP TS 22.258 V0.3.0 (2004-04)

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*Technical Specification*

**3rd Generation Partnership Project;  
Technical Specification Group Service and System Aspects;  
Service Requirements for an All-IP Network (AIPN);  
Stage 1  
(Release 7)**



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## Introduction

The All-IP Network (AIPN) was the subject of a feasibility study within [2]. The present document contains the stage 1 requirements for the AIPN based upon the conclusions of this feasibility study.

The AIPN is an evolution of the 3GPP system to meet the increasing demands of the mobile telecommunications market. Primarily focused upon enhancements of packet switched technology, AIPN provides a continued evolution and optimisation of the system concept in order to provide a competitive edge in terms of both performance and cost. Moreover, it is important that developments of the 3GPP system are compliant with Internet protocols. The AIPN is not limited to consideration of only the transport protocol used within the 3GPP system but adheres to the general concept of a network based upon IP and associated technologies, able to accommodate a variety of different access systems. Although, it is possible to use a variety of different access systems to connect to the AIPN, the AIPN provides an advanced, integrated service set independent as far as possible from the access system used.

The high level objectives of introduction of the AIPN are to realise: *universal seamless access, improved user experience, reduction of cost* (for AIPN operators), and *flexibility of deployment*. There are also a number of motivations and drivers for the introduction of an AIPN which include but are not limited to: diversification of mobile services, need to satisfy user experience of early adopters, anticipation of PS traffic to surpass CS, desire to encompass a variety of access systems, need for increased system efficiency and cost reduction (OPEX and CAPEX), and advances of next generation radio access systems and broadband wireless IP-based networks.

The AIPN builds upon key success factors of the 3GPP system as a mobile network system (e.g. provision of network operator control within the network and the ability to utilise the wireless interface as efficiently as possible) whilst providing improvements in basic system performance and enhancing the capabilities for network operators to provide services to subscribers and users.

For further details on the high level objectives, motivations and drivers, and impacts upon the models of the 3GPP system of the AIPN see [2].

---

# 1 Scope

The present document describes the service requirements for the All-IP Network (AIPN) including service requirements applicable to Evolved UTRA and UTRAN. Where appropriate, references are made to service requirements within other 3GPP specifications that are applicable to an AIPN.

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[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TR 22.978 " All-IP Network (AIPN) Feasibility Study".

---

# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions apply.

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**Access system:** An entity or collection of entities that provides the user the capability to connect to the AIPN.

**AIPN operator:** An operator of an AIPN. It is assumed that the AIPN operator will also be a network/PLMN operator as defined within [1].

**IP service:** A service using an IP bearer provided by an IP service provider. For IP services data traffic is routed according to the IP addresses of the sender and receiver.

**IP service provider:** A service provider that provides IP services. This may or may not be a network operator e.g. the operator of an IMS would be an IP service provider according to this definition.

**IP service subscriber:** A subscriber to an IP service provider that uses IP services.

**Seamless:** A user experience that is unaffected by changes in the mechanisms used to provide services to a user.

Note: The determination of whether something satisfies the requirement for being seamless or not is dependent on the user's (e.g., human end-user, protocol, application, etc.) perception of the service being received and not necessarily the technology used to provide the service.

**Seamless Service:** Services provided across access systems and terminal capabilities. Provisioning of this service is continued between and within access systems and between terminals with minimal degradation in the service as seen by the user.

**Seamless session:** A session that is maintained during a change in access system, with no perceivable interruption from a user perspective, while adapting to the capabilities of each access system.

**End-user mobility:** The ability for the subscriber to communicate using the device or devices of his/her choice

**Terminal mobility:** The ability for the same UE to communicate whilst changing its point of attachment to the network. This includes both handovers within the same access system, and handover from one access system to another.

**Session mobility:** The ability for a communication session to be moved from one device to another under the control of the user.

**Ad-hoc Network:** A dynamically organized network of mobile terminals that are able to communicate with each other via some means (e.g. using IEEE 802.15 or WLAN in ad-hoc mode). An Ad-hoc Network may contain terminals that are capable of connection to a variety of access systems. In the context of AIPN, it is assumed that every terminal in the Ad-hoc Network is under the control of a separate user, each able to independently access the AIPN. The Ad-hoc Network routes their consolidated traffic towards the AIPN, to an Access system through one or more terminals in the Ad-hoc Network. The Ad-hoc Network may change the terminal carrying the consolidated traffic dynamically according to rules set up by the users. The Ad-hoc Network may move throughout the geographic coverage area.

**Moving Network:** A group of user devices (terminals) that move together, e.g. as part of a vehicular network. The user devices (terminals) are interconnected in a way that their consolidated traffic towards the AIPN is routed through a well-defined system (gateway). The elements of the consolidated traffic may originate from PAN and Ad-hoc Networks within a Moving Network.

For further definitions see [1].

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AAA	Authentication, Authorisation and Accounting
AIPN	All-IP Network
SSO	Single Sign-On

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## 4 General description

The AIPN is a common IP-based network that provides IP-based network control and IP transport. This includes the provision of IP-based mobility control of the high quality appropriate for cellular networks (i.e. no degradation in performance compared to other cellular mobility mechanisms) that is not dependent upon specific access or transport technologies, or IP version. It is the aim of the AIPN to provide a seamless user experience for all services within and across the various access systems. As well as across multiple diverse terminals a user may possess. Interworking with external IP networks (e.g. Internet) and legacy networks (e.g. PSTN) is provided and functionality at the edge of the network enables support of different access systems and legacy equipment.

A visual representation of the AIPN is provided in the figure below:

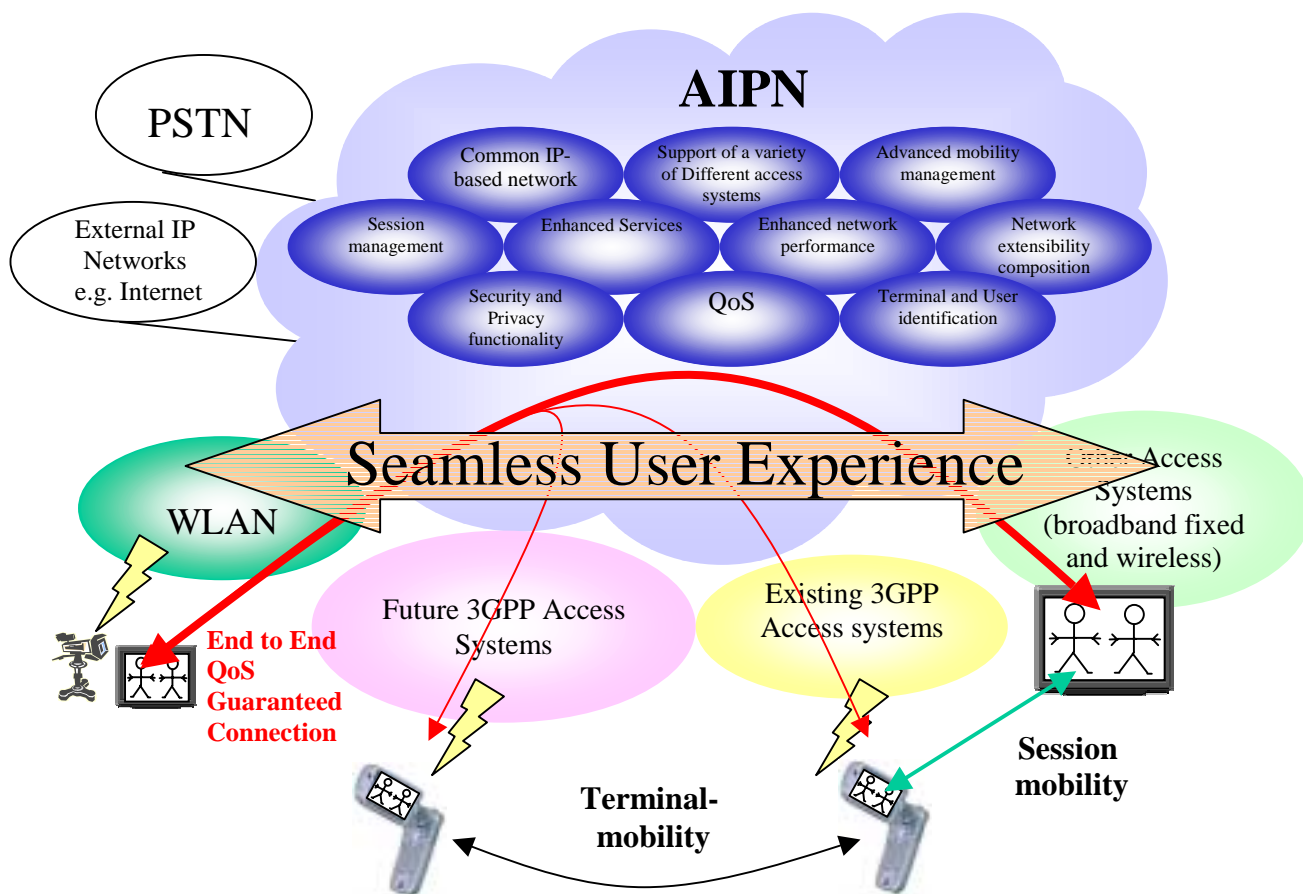


Figure 1: Visual representation of the AIPN

The key aspects of an AIPN can be summarised as follows:

- Support for a variety of different access systems
- Common capabilities provided independent to the type of service provided with convergence to IP technology considered from the perspective of the system as a whole
- High performance mobility management that provides end-user, terminal and session mobility
- Ability to adapt and move sessions from one terminal to another
- Ability to select the appropriate access system based on a range of criteria
- Provision for advanced application services as well as seamless and ubiquitous services
- Ability to efficiently handle and optimally route a variety of different types of IP traffic including user-to-user and user-to-multicast traffic models
- High level of security and support for user privacy e.g. location privacy, identity privacy
- Methods for ensuring QoS within and across AIPNs
- Appropriate identification of terminals, subscriptions and users
- Federation of identities across different service providers

The key aspects of an AIPN are provided in addition to capabilities for efficient resource usage, charging and international roaming that are inherent within the 3GPP system.

## 4.2 Development of an AIPN

The AIPN is a development of the 3GPP system, hence the AIPN should be developed focusing upon mobile network scenarios and the requirements of network operators (e.g. for the provision of network control within the AIPN under the control of the network operator and efficient usage of radio resources). Additionally, introduction of the AIPN should not result in degradation of the performance of the system. In general, introduction of the AIPN should result in increased performance and improvements in user experience.

Note: In some cases it may not be possible for the full capabilities of the AIPN to be utilised if other parts of the 3GPP system based on a release that does not fully support the relevant AIPN capabilities are used. For example, in the case a UTRAN or GERAN based access system is used that belongs to 3GPP release that does not fully support AIPN, some restrictions to the services and performance may be experienced by the user.

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## 5 High Level Requirements

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## 6 Basic AIPN Capabilities

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

### 6.2.1 Network performance

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 6.2.1.1 IP-based routing and addressing

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

### 6.2.4 Optimised IP session control

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

### 6.2.5 Support of IP traffic

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 6.2.5.1 Support of increased IP traffic demand

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 6.2.5.2 Ability to effectively handle a variety of different types of IP traffic

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 6.2.6 Quality of Service

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## 7 Multi-access and Seamless Mobility

### 7.1 Support of a variety of different access systems

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 7.1.1 Access system selection

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

### 7.2 Mobility management

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 7.2.1 Heterogeneous access systems mobility

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 7.2.2 Heterogeneous mobility mechanisms

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

#### 7.2.3 Frequent mobility

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## 8 Service requirements for Evolved UTRA and UTRAN

This chapter specifies the service requirements for the Evolved UTRA and UTRAN and related system architecture enhancements.

*< Requirements applicable to the evolution of UTRA and UTRAN (e.g. throughput requirements etc...) to be captured here >*

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## 9 Ad-hoc Network and Moving Network Support

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## 10 Security and Privacy

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*

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## 11 Charging

*<To be added based on TR 22.978 and feedback received from other groups on TR 22.978>*



## Annex <A> (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
4/4/2005					Initial draft produced by AIPN Rapporteur and provided to the SA1 AIPN email exploder for comment.	-	0.0.0
6/5/2005					Updates based on discussions during SA1#28 and comments received to v0.0.0.	0.0.0	0.1.0
6/5/2005					Updates based on discussions during AIPN SWG during SA1#28.	0.1.0	0.2.0
6/5/2005					Updates based on discussions during AIPN SWG during SA1#28.	0.2.0	0.3.0