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Presentation on proposed WI:

Enhancement of Broadcast and Introduction of Multicast Capabilities in RAN

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Outline

- Cell Broadcast Services in Rel-99.
- Limitations of Rel-99 Broadcast Capability.
- Multicast: definition and work so far.
- Conclusions and *the way ahead …*

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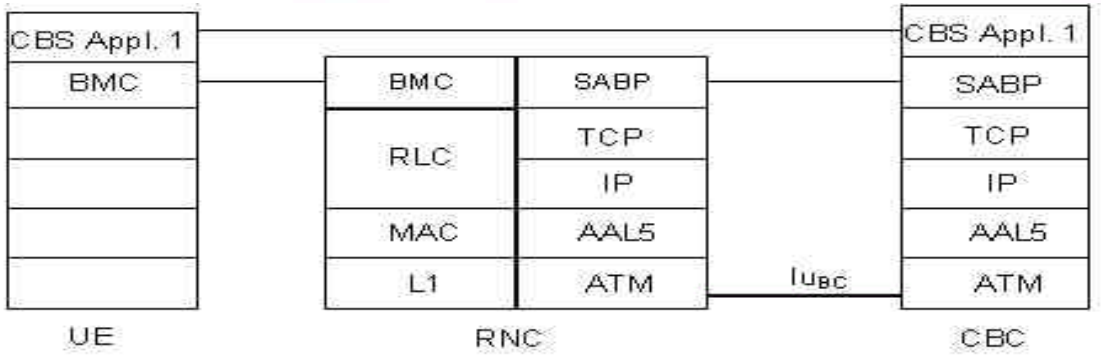
Cell Broadcast Services in Rel-99

- 3GPP Rel-99 specifies the following protocols for broadcast/multicast services:
  - SABP : Service Area Broadcast Protocol

    The SABP is used for both user data transfer and Control signaling between RNC and Cell Broadcast Center.
  - BMC : Broadcast/Multicast Control Protocol

    The BMC protocol adapts Cell Broadcast and Multicast services, originating from the Cell Broadcast Center, to the radio interface.
- Over the radio, Forward Access Transport Channel is adopted.



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Potential Limitations of Rel-99 Broadcast Capability

- Only GSM SMS-Cell Broadcast Service is supported.
- The maximum message length is limited to about 1200 octets.
- There is no network layer access control:
  - Within service area, information is broadcasted regardless whether recipients are there or not
- There is no mean to provide traffic differentiation at Iu-BC:
  - i.e. only one service class is available
- There is only one Service Access point for broadcast/multicast services.

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What is Multicast ?

By point-to-multipoint services (**multicast**) we refer to the transmission of a single "message" to a sub-group of subscribers in a certain geographical area or areas. Multicasting is a new type of service which, as seen so far, is not covered in the current 3GPP specifications although cell broadcasting does exist.

or

A **multicast** is a content stream delivered over a multicast-enabled network (RAN), where all clients (terminals) in the network (cell) share the same stream.

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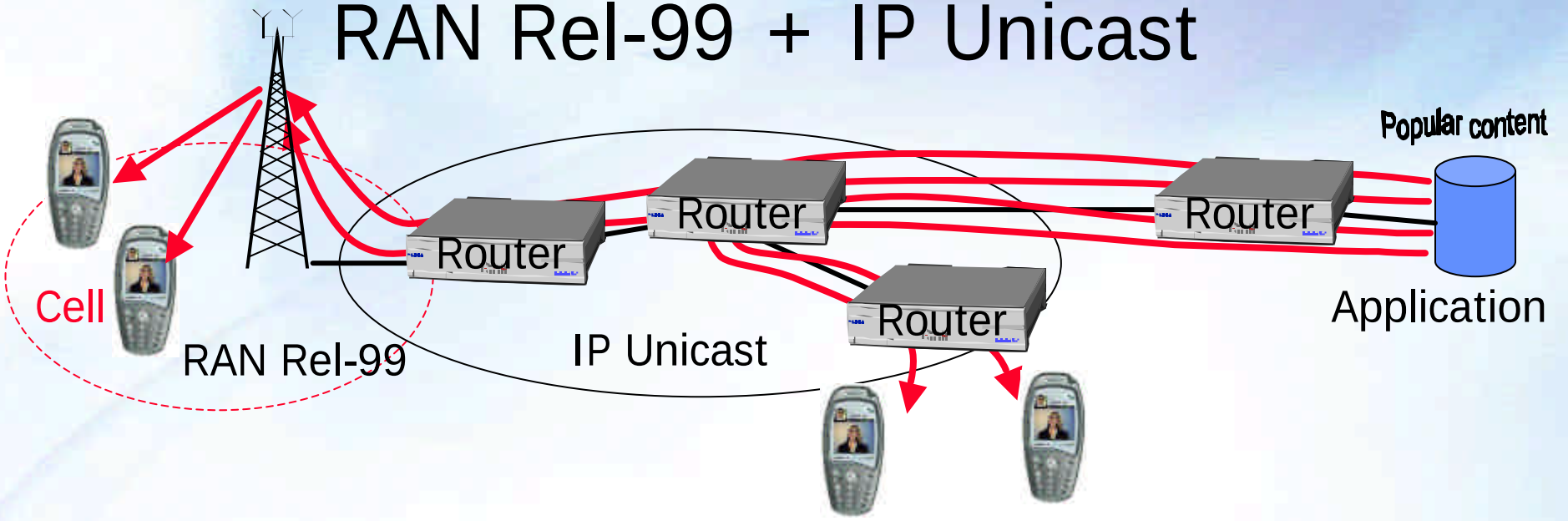
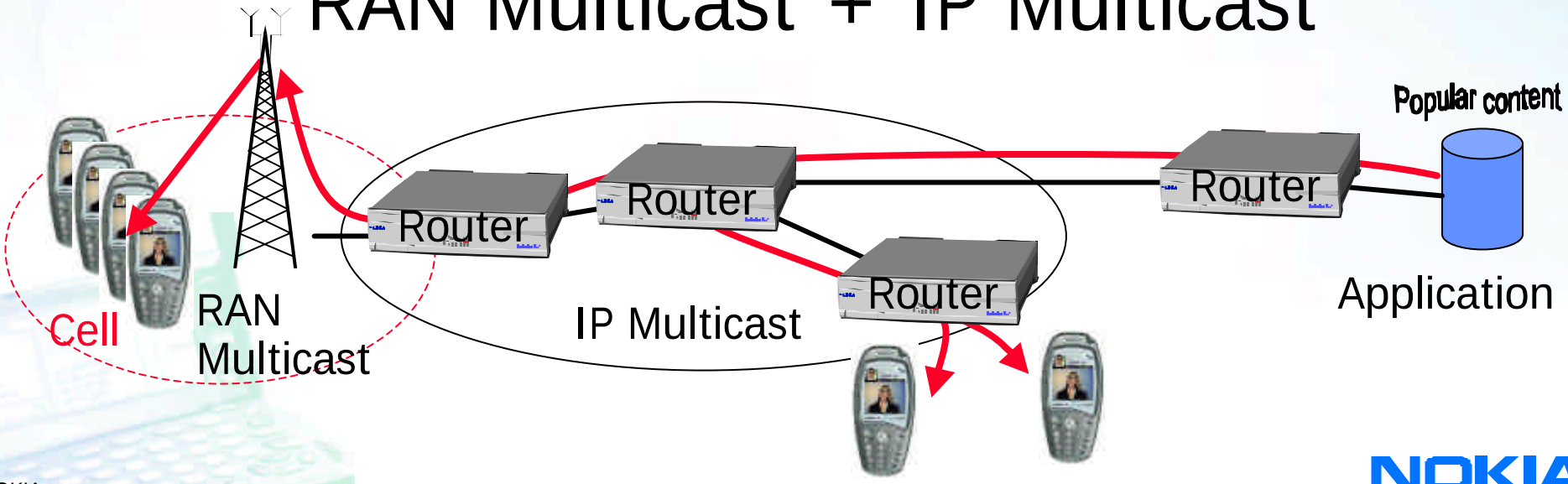
RAN Rel-99 + IP Unicast



RAN Multicast + IP Multicast



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So far...

- In GPRS point-to-multipoint transmission already exists since 1998 (however it has been no further than stage 2).
- In 3GPP, although the multicast functionality has been introduced [25.324, 25.925], the actual concept has not been standardised yet. Currently in Rel-99 of the 3GPP RAN specification, "SMS Cell Broadcast" is the only supported broadcast/multicast service.
- 3GPP TSG T2 has already started discussions on "advanced cell broadcast", yet no contributions have been brought forward although the issue has been on (at least) since the 3GPP TSG RAN#6 meeting.

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Conclusion and *the way ahead …*

- We believe that now is the right time for the Multicast capability to be standardised in RAN for Rel-5 so that the broadcast/multicast specification could be completed.
- In addition, a need for enhancement of the existing broadcast protocol has been identified.
- All aforementioned additions/enhancements are largely depending on the need of 3G Operators and Service providers.

- Examples of resulting new services:
  - Content rich, Multimedia, Point-to-Multipoint Messaging.
  - Area based push services, advertising.
  - Video / Audio Streaming multicast.
  - etc

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