

# Why to monitor Mobile Network Services with active probes/monitors

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# Agenda

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## Motivation

- When discussing active monitoring of mobile network services with Operators and MVNOs there are sometimes arguments against the active probing approach, such as:
  - “Active monitoring causes OPEX for service usage.”
  - “What are the business driven arguments for active monitoring?”
- Each case is different, but in fact there are a number of arguments for active probing. This presentation tries to depict some of the.

## General Remarks

- Active monitoring is the only way on who to get the end user experience. If you want to manage quality from the end user perspective, active monitoring is the only way to obtain a quantified quality picture.
- Active monitoring of mobile network services can be compared to ping an IP host to see whether it is alive. You do this from time to time with a small packet and the aim not to harm the real payload traffic. Same applies for active monitoring of mobile network services.

## The OPEX caused by active monitoring – active SMS monitoring

- A comprehensive approach for active monitoring shall attach one probe for each service in each MSC area of the operator. And the minimum services to monitor are voice and SMS. A reasonable time interval between two measurements are 10 minutes:
  - We assume x MSC areas, this causes x samples per 10 minutes interval per service.
  - Price for SMS probing per month:
    - $30 \text{ days} * 24 \text{ hours} * 6 \text{ samples / hour} * x \text{ samples/interval} \rightarrow$
    - $4320 * x \text{ SMS samples per month}$
  - Assuming 10 MSCs and 6 Euro Cent per SMS:
    - $4320 \text{ samples} * 10 \text{ MSCs} * 6 \text{ Cent/SMS} \rightarrow$
    - 2592 Euro SMS OPEX for complete monitoring of the network / month
- But: In fact we are talking about on-net SMS. The effective costs for the operator are exactly zero. For MVNOs the picture is different.
- The only capacity occupied is SMSC and signaling network capacity. No voice call may get lost by this.

## The OPEX caused by active monitoring – Voice Services

- Again, a comprehensive approach for active monitoring shall attach one voice probe in each MSC area of the operator. A reasonable time interval between two measurements are 10 minutes:
  - We assume x MSC areas, this causes x samples per 10 minutes interval per service. To be cheap, we pick up the phone at the called party only in 50% of the cases.
  - Price for Voice probing per month:
    - $30 \text{ days} * 24 \text{ hours} * 6 \text{ samples / hour} * x \text{ samples/interval} \rightarrow$
    - $4320 * x \text{ Voice samples per month}$
  - Assuming 10 MSCs and 5 Euro Cent per Voice Call:
    - $4320 \text{ samples} * 10 \text{ MSCs} * 5 \text{ Cent/accepted call (50\%)} \rightarrow$
    - 1080 Euro Voice OPEX for complete monitoring of the network / month
- This applies for Operators and MVNOs. For the operator case it should be mentioned, that these are on-net calls causing opportunity costs only.

## Active monitoring for consumer markets

- In difference to professional data services, mobile telecommunication service offerings for consumer markets usually do not provide service level agreements. If there is no coverage or the network is not working as expected, this is a personal pity for the subscriber. So the motivation of the operator / MVNO to monitor quality is limited.
- But in fact subscribers are unhappy if the service fails. They cause costs by calling the customer care and/or are churning out of the customer base of the operator or MVNO.
- And they talk to other customers about their negative experience, approx. to 10 persons per incident. This causes the subscriber to move quicker in the lifecycle.
- Last but not least, the operator or MVNO loses revenue during the incident period. This can be calculated in € or US\$ per incident.
- Our experience is that active monitoring in general and especially for mobile network services allows for quick detection of incidents and more rapid reaction causing faster service restoration.
- Active monitoring for consumer markets is an important steering tool to optimize acquisition costs, customer retention and revenue optimization.

## Active monitoring for business markets

- When discussing business markets in mobile telecommunications (such as Machine-2-Machine or professional Internet Access), mobile network operators and MVNOs are required to provide Service Level Agreements and need to prove them. The ITIL model applies for these applications in the business segment.
- Active monitoring provides service quality data required to prove SLAs – a direct need in the business markets.
- And even more important: Active monitoring in combinations with a SQM system such as BAC/BPM enable the operator or MVNO to detect incidents quickly, helps to determine root causes faster and provides management with the information on “Where do we stand today?”.
- All the arguments for active monitoring in the consumer market apply as well, with the exception that service incidents may cause penalties immediately.
- Active monitoring for business markets is an essential element to fulfill service quality management for these markets. It is a qualifier, not a differentiator.

## Conclusion

- Active monitoring for mobile network services is one preferred instrument to manage service quality for mobile network operators and MVNOs.
- The OPEX costs caused by the traffic are basically opportunity costs for network operators and for MVNOs there are ways to keep them small.
- For consumer markets the costs connected by active probing are usually small compared to late recognition of an incident.
- For business markets active monitoring is must – caused by SLA requirements.
  
- At the end the question is not “Do we need active monitoring?”. The right question is: “Can we afford to live without active monitoring?”
- For the quality management department of an operator or MVNO this means: “Not to deploy active monitoring is to omit an established instrument for service quality monitoring.”

## Questions?

**Please do not hesitate to contact us:**

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**Thank you for your attention!**

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