Analysis of the reasons for the power outage of communication base stations

Can a base station predict a power outage?

Though each single power outage of one given base station is truly hard to predict precisely,the statistical long-term power outage trends (e.g.,in every year) can have a very similar pattern (e.g.,a base station built in cold area may suffer from several power outages due to the heavy snow every year).

How many base stations in China have a power outage?

In this paper, we closely examine the power outage events and the backup battery activities from a 1.5-year dataset of a branch of a major cellular service provider in China, including 4,206 base stations and more than 1.5 bil-lion records on base stations and batteries.

Why do cellular communication base stations need a battery alloc?

Current cellular communication base stations are facing serious problems due to the mismatch between the power outage situations and the backup battery supporting abili-ties. In this paper,we proposed BatAlloc,a battery alloca-tion framework to address this issue.

Why are base stations important?

Base stations play a key role in 4G/5G communications,,edge computing and vehicular network based applications . Their reliability and availability heavily depend on the electrical power supply,for such modules as transceivers,air conditioners,monitoring system are all power hungry.

In this work, we formulate a novel problem for an unplanned emergency power outage at telecommunications base stations and propose a BPC algorithm to solve it to optimality.

In the communication power supply field, base station interruptions may occur due to sudden natural disasters or unstable power supplies. This work studies the optimization of battery ...

In this paper, we closely examine the base station features and backup battery features from a 1.5-year dataset of a major cellular service provider, including 4,206 base stations...

Abstract--Base stations have been widely deployed to satisfy the service coverage and explosive demand increase in today"s cellular networks. Their reliability and availability heavily ...

One of the primary tasks for effective disaster relief after a catastrophic earthquake is robust communication. In this paper, we propose a simple logistic method based on two-parameter ...

Abstract--One of the major issues in the deployment of solar powered base stations (BSs) is to dimension the photovoltaic (PV) panel and battery size resources, while satisfying outage ...

Results show that application of root causes analysis can be achieved to identify, categorize and define appropriate supportive action for base station outage.

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In this study, we proposed a methodology for assessing damage to mobile communication facilities subjected to major earthquakes, with consideration of both ground shaking ...

In this paper, we conduct a systematical analysis on a real world dataset collected from the battery groups installed on the base stations of China Mobile, with totally 1,550,032,984 records ...

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