

## SolarTech Power Solutions

# Base Station Deployment Scenario



## Overview

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The base station installed on the unmanned aerial vehicle, referred to as the UAV-mounted base station (UBS), is considered an innovative paradigm for restoring cellular connectivity in areas where a te.

What are the implementation details of the deployment component?

The implementation details of the Deploy component are elaborated upon in Section 6. For the centralized or distributed-centralized strategies, the deployment strategy is initially computed at the remote station (or secondary stations) and subsequently communicated to the UAV-BSs.

Can UAVs be used as Aerial Base stations?

By equipping UAVs with communication units to function as aerial base stations, wireless connections can be established with ground users to improve the quality of service (QoS for short), thereby compensating for the limitations of terrestrial communication systems in terms of flexibility and coverage range.

How do UAV-BS deployment strategies affect QoS?

Firstly, the count of UAV-BSs and user distributions fluctuate dynamically over time. This dynamism complicates the task of crafting a consistent UAV-BS deployment strategy that optimizes QoS. Furthermore, any change in user distributions or the number of UAV-BSs necessitates an adjustment to the deployment strategy.

What are the challenges of deploying UAV-BSS?

However, deploying UAV-BSs faces challenges including the cooperation of multiple UAVs, dynamic user distribution, low-reliability issues of UAVs, and efficient redeployment in large environments. Existing literature addresses some of these challenges but lacks a comprehensive approach.

How to deploy UAV-BS in time slot  $t$ ?

According to the Partition component, the deployment of UAV-BSs in time slot

t can be represented by  $S_t = \bigcup_{A' \in \text{Leaf}(T(A))} S_t(A')$ . Therefore, instead of constructing  $S_t$  globally, the Deploy component generates  $S_t(A')$  for each leaf node  $A' \in \text{Leaf}(T(A))$  locally.

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